Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Vol. IX. CHICAGO, ILL., NOVEMBER 22, 1909. NO. 5.

CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributers of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere. Also Southern agents for the "Dehydratine's" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing. Get our prices.

Charleston, S. C. Birmingham, Ala. Atlanta, Ga. New Orleans, La.

DEXTER Portland Cement THE NEW STANDARD

Sole Agents SAMUEL H. FRENCH & CO. Philadelphia

SPECIAL FEATURES IN THIS NUMBER

	Page		Page
Sewage Disposal System for Small Towns	3	Concrete Structural Tile Advocated by Leading Architects	40B
Fine Plant and System for Preparing Standard Testing Sand	31	Complete List of Exhibitors at the Coming Chicago Cement Show	40A
National Good Roads Association Convention at Columbus, Ohio	36	Mammoth Splash Dam in the Mountains of Virginia	40D
Annual Deep Waterways Convention at New Orleans	22	Busy Retailers of Building Supplies in Indiana and Ohio	27
Gas Firing for Lime Kilns, by Ernest Schmatolla	36B	Index to Advertisements	52

UNION MINING COMPANY

Manufacturers of the Celebrated

MOUNT SAVAGE FIRE BRICK GOVERNMENT STANDARD

DEVOTE a special department to the manufacture of Brick particularly adapted both physically and chemically to

Lime Kiln and Cement Kiln Construction

Large stock carried. Prompt shipments made. Write for quotations on Standard and Special shapes, to

UNION MINING CO., Mount Savage, Md.

CAPACITY, 60,000 PER DAY. ESTABLISHED 1841.

Phoenix Portland Cement UNEXCELLED FOR ALL USES.

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PHOENIX CEMENT CO.

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Is used for sawing stone in more than a dozen states. Cuts more and lasts longer than any other sand on the market. Unexcelled for Roofing, Facing Cement Blocks, White Plaster, etc. Freight rates and prices on application.

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Chicago Belting Co.

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MAKERS OF **Leather Belting**

BEST BELT FOR DAMP PLACES

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ALMA Portland Cement

STANDARD BRAND OF MIDDLE WEST.

Specially adapted to all Reinforced Concrete and High-Class Work.

ALMA CEMENT CO. WELLSTON, OHIO.

How do you figure your Lime Kiln, Rotary Cement Kiln and other furnace expenses and charges for Refractories?

By the cost of the BRICK, or by the length of the service they will give?

Harbison-Walker Refractories Co. { FIRE CLAY, SILICA, MAGNESIA, CHROME } **Brick**

Are made of the highest grade raw materials under expert supervision, in modern up-to-date works, and are worth more because better than others. They last longer and are more economical. You can prove this statement in your own works by sending us a trial order. Information, records and prices on request.

Harbison-Walker Refractories Co.

LARGEST CAPACITY PITTSBURG, PA. PROMPT SHIPMENTS

THIS SPACE FOR SALE GOING! GOING!

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A PERFECT RECORD FOR TEN YEARS

IN ALL KINDS OF CONCRETE WORK

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PENINSULAR PORTLAND CEMENT · JACKSON, MICH.

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Acknowledged by competent Architects and Engineers to be unequaled for fineness, wonderful development of strength and sand carrying capacity.

"THE BEST IS THE CHEAPEST"

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—Ask—
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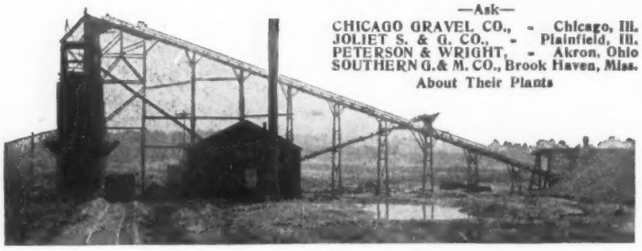
About Their Plants



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High Tensile Strength, Finely Ground, Light and Uniform in Color.
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Strength
Uniformity
Satisfaction

A Dependable Portland Cement

An Unblemished Record for six years speaks for itself

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Coldwater, Michigan
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The Recognized Standard American Brand

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CHICAGO "AA"

1,000,000 Barrels Annually

Highest Quality

THE BEST THAT CAN BE MADE

Factory at Oglesby, near La Salle, Ill.
On C. M. & St. P. R. R.
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C. R. I. & P. R. R. by Switch.

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85% Thru 200 98% Thru 100

UNIFORMLY 10% FINEST GROUND CEMENT MANUFACTURED

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Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume IX. CHICAGO, ILL., NOVEMBER 22, 1909. Number 5.

DISPOSAL SYSTEM FOR SMALL TOWNS

Efficient and Economical Sanitary System Within the Cost Limit of Minor Municipalities and Inland Communities.

Sanitary conditions have more to do with health than any other problem to be considered. Disposal of sewage is a question which all villages, towns and cities have to cope with. The solution of this has been worked out by various municipalities with more or less success, and we are able to chronicle a work in one inland village which has proved an economical working success.

Cities which are advantageously located on a river or a moving body of water can discharge their refuse and sewage into it. Naturally the waste will be carried off, thus overcoming the danger of disease. It is the small inland towns that must devise some means of destroying all waste material.

How the people of Aledo, Ill., were able to build a sewerage system in which they combined a purification plant is herein described.

Previous to the installation of this system, the sewage was carried off into the lowlands. There it was deposited and the sediment was a breeding place

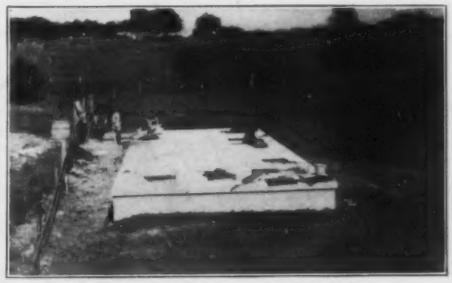
LAYING THE FLOOR OF THE SEPTIC TANK.

for disease microbes and all kinds of deadly insects. To overcome this, the engineer designed in connection with the improved sewerage system, a purification plant which now completely destroys all incipient elements of danger.

Concrete was used to a large extent and now, with concrete tile available at every shipping point, many such sewerage systems with combination purification plants may be constructed, using concrete entirely for the various tanks, pipes, etc. Concrete tile in such construction opens a field for the smaller towns to install a very high grade sewerage system at comparatively small expense.

Before the sewer system was constructed in Aledo, the town was in a very insanitary condition. The storm sewers consisted for the most part of small drain tile mains running into a nearby swamp. A number of the smaller lines were plugged entirely, and the larger ones in many cases were used as outlets for sanitary drains.

W. S. Shield, a Chicago engineer, designed the new



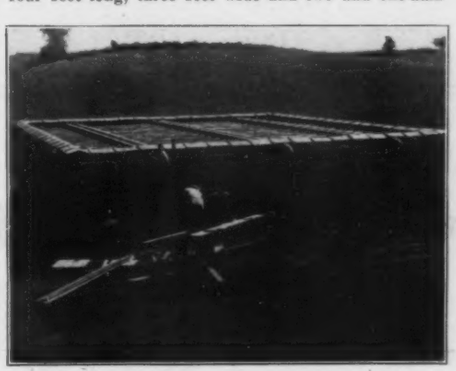
THE SEPTIC TANK COMPLETE.

sewerage system, and in May, 1909, the Standard Construction Co., of Chicago, was awarded the contract and started the work. P. R. Fletcher, C. E., of Blue Island, Ill., had practical charge of the entire construction of the job, and to his experience and wide knowledge of the subject no little of the success of the undertaking is due. Heavy and continuous rains delayed the work, and it was nearly September before the various lines were ready to be connected. Vitrified tile of varying sizes was used. The short feeders are 6", the sub-main 8" and 10", and the main is 12". These are laid at varying depths of from 7 to 17 feet. Owing to the heavy rains, the ground would not stand digging with a machine, and so nearly all the trenches were excavated by hand.

Five flush tanks of about 150 gallons capacity each, are installed on the dead ends. The combined manhole and flush-tank variety is used and equipped with 5" automatic siphons. They were constructed in the following manner:

A rectangular brick tank with 8" walls was built, four feet long, three feet wide and two and one-half feet high. It has a two-course arched roof, and a 6" concrete floor, the top of which is about eighteen inches above the sewer main. The inside of the tank is plastered with Portland cement below the water line, and a small faucet extends out from the wall, four inches above the water line and is connected with the city mains by a one-inch service pipe. This supplies the tank with water and by setting the faucet, the siphon can be made to discharge at regular intervals. The siphon is set in the floor at the proper height, with the spout extending through the tank wall into the manhole at a distance of thirty inches from the end of the sewer main, and about eleven inches above it. A brick invert was built on an incline to connect the two and the bottom plastered. The semi-circular manhole was built in the usual manner and connected to the tank, and the arched roof of the tank was tied into the neck of the manhole. Eight bags of Portland cement, five bags of Utica hydraulic cement, 1,500 brick, and the metal fixtures, constitute

TOP OF SEPTIC TANK WITH REINFORCEMENT FILTER IN BACKGROUND.



FROST CASE ON RESERVOIRS.

the material requirements for one of these tanks, the total cost of which is from $60 to $75.

The site for the purification works was chosen on a small hill at the south end of the town. The top of this hill is considerably lower than any point in the town, thus giving a sufficient fall for the sewer mains. At the foot of the hill there is a deep ravine and this is the final outlet for the entire system. About two-thirds of the way down the hill the filter plant is located. Originally designed of concrete, the filter was finally constructed of tile, on account of the scarceness of gravel. It is thirty-six feet square and eight feet high, with 16" walls and a 6" concrete floor. In this case the tile are the 8"x8"x16" size with longitudinal openings. Three rows of ventilators are made by simply laying the tile crosswise. The wall made in this way is wonderfully strong.

Six solid concrete piers are built at regular spaces to support the concrete troughs. Broken tile fills the

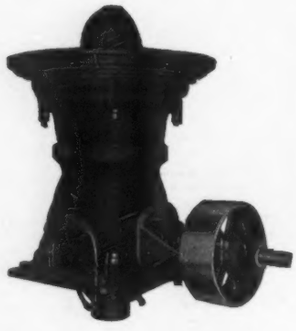
(Continued on page 42)

POWER AND MINING MACHINERY COMPANY

CEMENT MACHINERY

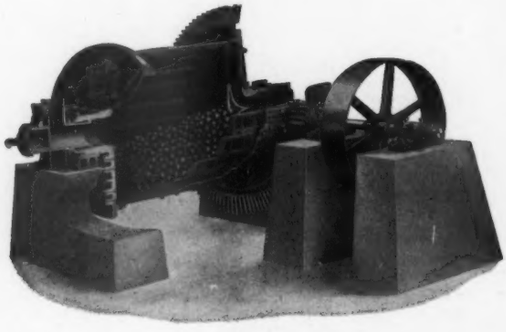
Our machinery for Cement Making Plants is of the most modern type embodying those principles of construction and operation that have proved to be the most successful.

Every machine which we turn out has a record behind it for durability, excellence of product and low cost of maintenance.



McCully Crushers

are made in 10 sizes and mammoth, with 27 in., 36 in., and 42 in. openings.



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that eliminate screens and do away with shut-downs. Unexcelled for preliminary grinding.

Other machines of equal merit and importance are

COOLERS, DRYERS, ROTARY KILNS, TUBE MILLS

Get full information from Catalog 7R, "Cement Making Machinery."

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Sales Offices

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522 Sheldon Building

Hydrated Lime

Bulletin 30

THERE ARE INNUMERABLE GOOD REASONS

Why you should install [at once]

The Kritzer Hydrating Process

THE chief and principal reason is, because Hydrated Lime has proven to be of far superior merit—much more economical and effective than common lump lime.

¶ Most Architects, Masons, Contractors, Dealers, Corporations and Owners know this—others are rapidly acquiring this knowledge.

¶ Consequently, the great and steadily-increasing demand for Hydrated Lime—which has already so shifted and changed the trade conditions that even now lump lime appears in perspective as if it never had been more than an incomplete or half baked product.

¶ And inasmuch as the demand has greatly changed, the supply must also change.

¶ Hence, keen and ambitious Lime manufacturers are hastening to install the KRITZER HYDRATING PROCESS—to keep abreast of the times and save to themselves the business of a lifetime.

¶ We have expert engineers and practical men to design, build and equip a complete Hydrating Plant for you—exactly suited to all conditions and needs of your locality.

¶ We will START you RIGHT!

¶ The **Kritzer Hydrating Process** has always been successful. Never has it met with even a criticism.

¶ We will develop for you the ONE SYSTEM that will produce the **greatest returns on your investment**—so that **success** and **prosperity** will be **assured you** from the **start.**

It's Time Right NOW for YOU to Get Busy!

¶ For full particulars on "the most successful process," write

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115 Adams Street - CHICAGO, ILLINOIS

The Clyde Hydrator

is the accepted standard of highest efficiency, economical operation, positive results and general all around serviceability in hydrating machinery.

There are more of them in use than all others put together.

They have proven their merit under all conditions.

We will furnish full information, booklets and interesting data on your request.

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Manufacturers.

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The Quality That Never Fails

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PORTLAND CEMENT

Your Cement Needs Can Be Supplied Efficiently

Daily Capacity of 8,000 Barrels. Write today to

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ABSOLUTE UNIFORMITY

HIGHEST STANDARD

DAILY CAPACITY, 6000 BARRELS

The best technical and practical skill, backed up by an experience of years, operating the most modern plant in the country on the highest grade of raw materials, justifies our claim that

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Stands for Quality

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High Tensile Strength
Light Uniform Color
FINELY GROUND

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is made in nine distinct models, ranging in widths from 9 6-10 to 32 6-10 inches, thus covering the entire business field. You will be interested in the special devices and special features for

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Damp and Water-resisting Paint. Waterproofs structures from cellar to roof.

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(Liquid Concrete)
Beautifies and waterproofs brick and concrete surfaces.

HYDRATITE
This compound makes concrete impervious to water.

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"LIMOID"

used in all Brick and Terra Cotta Block Work

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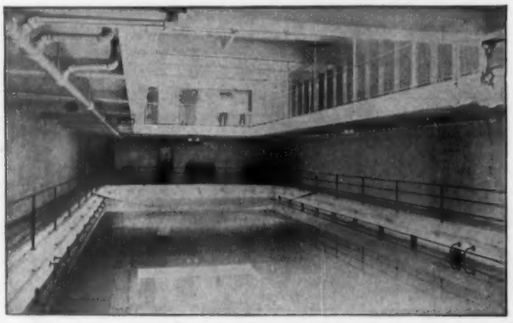
Medusa Water-Proof Compound

(Patented April 23, 1907)

Makes all Concrete Watertight
It Is Not a Wash

Write for pamphlet describing its use. Do not accept a substitute, as there are many adulterated compounds on the market.



Soulard Public Bath House, St. Louis, Mo.
Pool, floors, steps and walls surfaced with Medusa Pure White Stainless Portland Cement, containing Medusa Waterproof Compound.

Sample of our Pure White Portland Cement sent on request.

Obtain our price on Medusa Portland. Annual Capacity 1,500,000 bbls.

Sandusky Portland Cement Co.

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BRICK AND CEMENT COATING
as a Protection and Tint for Concrete

This Coating is made of a cement base, held in suspension by a volatile oil which evaporates on application. It contains no lead, is not affected by fumes of acids or gases and can be applied to a damp surface. It becomes a part of the material itself and will not rub, crack, peel, chip off or mildew.
It does not destroy the desirable distinctive texture of concrete.

It can be had in twenty-four beautiful shades ranging from pure white to dark green. It may be used as a finish coating for the ornamentation and protection of concrete, cement, stucco, brick or plaster on subways, cellars, mills, hotels, office buildings or small or large homes.
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For the better building purposes, concrete must be free from dampness. It must not absorb moisture. Hence it must be waterproof.

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Aquabar will waterproof any concrete construction—walls, basements, floors or stucco.

Our engineers will give your case their personal attention, without charge, if you will write us the full particulars about your concrete construction. Also write for our two free booklets and learn all about waterproofing.

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For Sale By All Dealers.

Note:—We also manufacture Aquabar Wash, which is wonderfully effective in weatherproofing old concrete walls.

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Bolting Cloths, Dufour Swiss Silk, Fine Wire Cloth. **Mixing and Sifting Machinery.**

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THE QUALITY LIME

Brings prosperity to those who buy it, because it is the whitest, purest and strongest lime in the world, and sure to give satisfaction. Our barrels are made of the best cooperage, bound by steel hoops that do not break. Write us at once for prices.

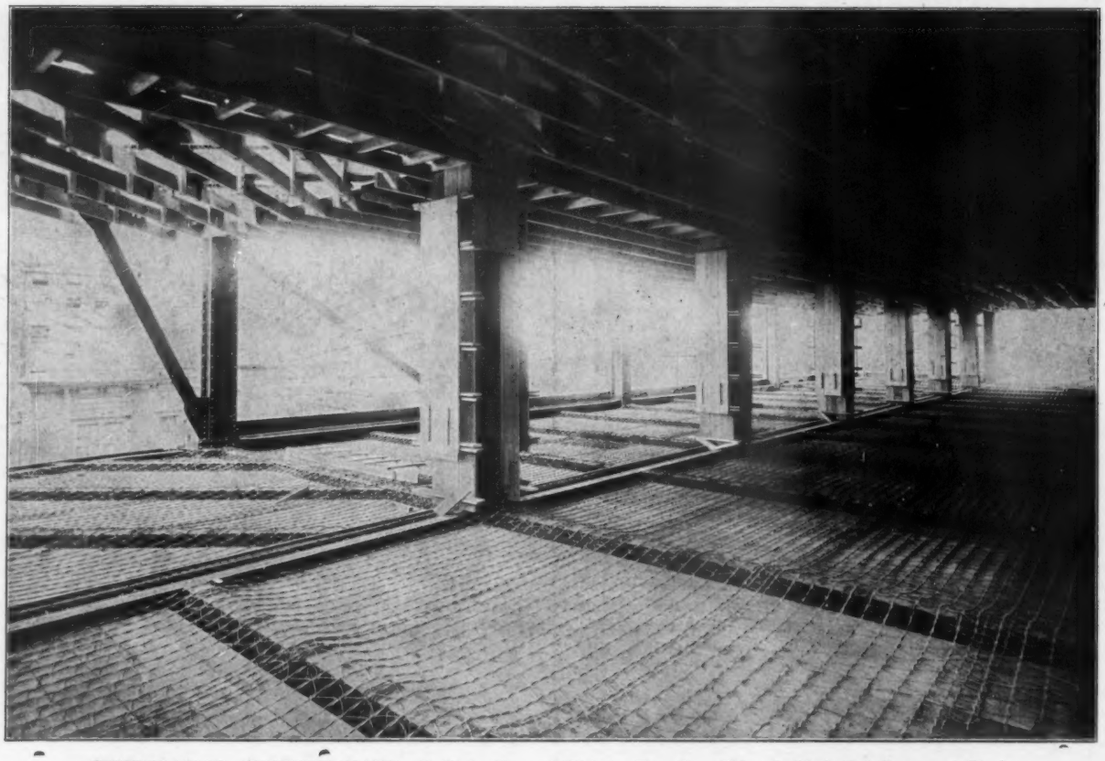
PEIRCE CITY LIME CO.
Peirce City, Mo.

"ANHYDRA"
The Perfect Waterproofing for All Kinds of Concrete Work

Thoroughly demonstrating experiments prove that this waterproofing preparation is the most economical and efficient thing of the kind ever offered on the market. It is permanent and constant in colors of the finished product, because it is made of natural materials of basic character that are unchanging. Permanent as the rock of ages. Quotations in any quantity.

Anhydrous Pressed Stone Co.
TELEPHONE MAIN 5278
134 Washington Street CHICAGO, ILL.

Triangle Mesh Concrete Reinforcement



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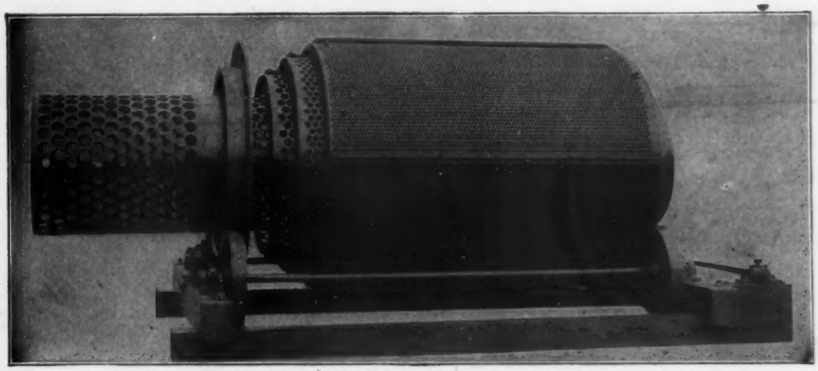

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on the market for wide-awake quarry-men and miners, who want to separate crushed granite, limestone or other minerals, gravel, sand, coal or coke. It will soon earn its cost in saving of repairs, and maintenance, and reduced power, and will do more and cleaner work than any other cylindrical screen of like area. No one can afford to keep old traps in use when the **O'Laughlin** installed

NOW

will from the moment it starts give a better and larger product, and a big interest on your investment in continuous saving in cost of repairs, renewals, and power. For particulars, address:

The advantages of these screens are described in detail in a circular which WE WILL MAIL TO ANY ADDRESS. Mr. John O'Laughlin, the inventor, has designed many notable improvements in rock-drilling, quarrying, crushing and screening machinery, and uses these improved screens in his own crushing plants, which others have declared "to be the most perfect in existence in every detail." The O'Laughlin Screen is an important factor in the most modern and perfect stone-crushing plant.

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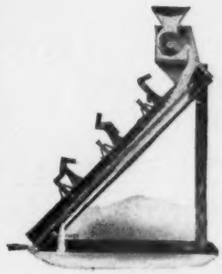

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Because it is the only Screen having automatically spring stretched wire which keeps it taut, and when the hammers "Twang" its surface, the material dances like drops of water on a hot stove. Other Screens **shake;** they cannot vibrate; wire cloth cannot be tacked tight; it stretches, and sags, and bags; it can no more be vibrated than a Banjo can be played with loose, sagging strings. Our patents cover "Spring Stretched Cloth"—the only method known of vibrating cloth. Vibration means output, durability and efficiency. Shake means destruction to frames and cloth, clogging and inefficiency.

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Specialist in designing, constructing and operating Gas Producers, Furnaces and Kilns for Rock Products, Chemical and Metallurgical purposes.

Longest experience and greatest success in PRODUCER GAS FIRED SHAFT KILNS for burning lime, dolomite and magnesite.

Many of these kilns, with daily outputs ranging from one to fifty tons per day, have been built in Germany, Austria, England, Russia and other European countries, also in America, Africa and Australia. Greatest economy in fuel and labor; very simple in operation, high class product, natural draft, all kinds of fuel, hard and soft coal, lignite, peat, wood and wood refuse. Best references.

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Has Stood the Test.

For fineness and smooth working qualities, it is a first class material, and gives perfect satisfaction when used for all purposes where lime can be used BANNER HYDRATE LIME will not swell or burst the sacks. Write us for circulars and prices

National Mortar & Supply Co. Pittsburg, Pa.

A. H. LAUMAN, President

Safest
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Strongest
Simplest
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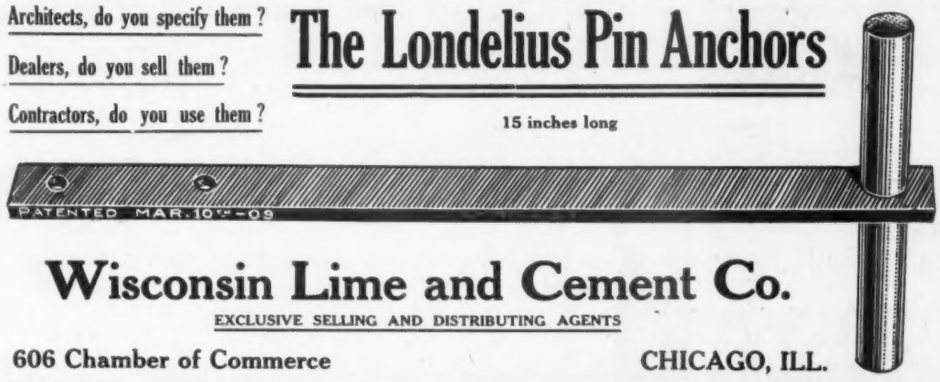
Dealers, do you sell them?
Contractors, do you use them?

The Londelius Pin Anchors

15 inches long



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Capacity 8000 Barrels Per Day

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Tiger Brand White Rock Finish the best known and smoothest working Hydrated Lime manufactured.

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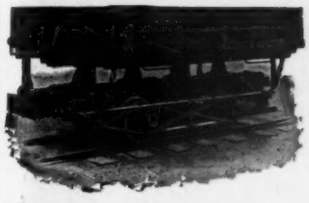

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Our Dump Cars are used on most of the large rock and dirt moving operations throughout the United States and Canada.

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CEMENT WORKS: Austin, Minn.
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The Best for Every Purpose where Chemically Pure Lime Is the Indispensable Element

Sand Lime Brick Difficulties can be Simplified and Overcome by the use of our Correctly Hydrated Lime.

Cement Blocks can be made more waterproof, cheaper, and of lighter color by the use of from 20 to 40% of pure hydrate, free from magnesia. This substitutes the same amount of cement and does not impair the strength of the block.

Finishing Lime As a finishing lime our Hydrate is unsurpassed. It is also a valuable addition to cement mortars, and for making mortar for brick and stone work.

Commercial and chemical requirements call for pure lime. We furnish a product of 98% analysis.

Kansas City **MARBLEHEAD LIME CO.** Chicago

The Bradley Producer

Gas Process for Burning Lime.

Four and three quarter pounds of lime to one pound of coal on a large output is now being secured every day.

Does that look like economy to you?

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Sole Manufacturers of **LIMATE** The first and best Hydrated Lime in the market . .

In tensile strength for stone and brick laying and adhesive strength for plastering **Limate has no Equal!**

The thirteen lime plants of

Western Lime & Cement Co.

Have a total lime producing capacity of 10,000 barrels daily

Distributors of Best Portland Cements and Masons' Building Materials. Correspondence respectfully solicited

Farnam "Cheshire" Lime Co.

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MANUFACTURERS OF THE

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Well known throughout New York and the Eastern States as the finest finishing lime manufactured. The special feature of this lime is its quick and even slacking, thus preventing any cracking or checking when put on the wall. It is the best lime used in the country today for all

HIGH GRADE FINISHING WORK

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SAVE MONEY, TIME AND LABOR
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Monarch Hydrated Lime

If Monarch Hydrated Lime wasn't better or cheaper than lump lime nobody would buy it. As a matter of fact it is both.

Monarch Hydrated Lime costs less delivered, can be thoroughly soaked in twenty-four hours, doesn't have to be screened, carries more sand, gauges with a third less plaster, spreads further and easier and will not air slack.

That's the whole story. Now try it. Compare the cost and the results with those of ordinary lime—and we have a new customer.

Monarch Hydrated Lime is made in Carey, Ohio, where the limestone is just right and the shipping facilities good. Our prices will satisfy you.

We also crush stone for all purposes.

THE
National Lime & Stone Co.
CAREY, OHIO.

Limestone and Shale
FOR MANUFACTURE OF
Portland Cement
ON THE
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IN THE
WEST AND SOUTH
Coal, Water and Good Labor

For Full Particulars Address
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I. C. R. R. CO.
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"IF IT IS **LIME** WE MAKE IT"

Lump - Barreled - Hydrated - Ground
STRONGEST IN OHIO.
We are not connected with any Trust or Combination.
WRITE US
PHONE US **The Scioto Lime and Stone Company, Delaware, Ohio**

PATENT SOAPSTONE FINISH
PLAIN AND IN COLORS FOR WALLS AND CEILINGS

Patent Soapstone Mortar
Prepared in any Color for Laying Pressed and Enameled Brick, Stone Fronts, Terra Cotta, Chimneys, Fire Places, Etc.

The Dodge Blackboard Material or Artificial Slate.

The Potter Blackboard Material.

SOAPSTONE MICA. CONCRETE DRESSING.
CRUSHED, GROUND AND BOLTED SOAPSTONE.

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C. P. DODGE, Proprietor. CHESTER DEPOT, VT.

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BUILDERS' LIME CHEMICAL LIME
HYDRATED LIME

HAMBURG, N. J.

Tell 'em you saw it in ROCK PRODUCTS

Amatite ROOFING

TRADE B MARK

After Five Years

The success of any article depends upon the repeat orders, the orders which come because the article has "made good."

No manufacturer can succeed without these.

Here is the kind of letters which we are constantly receiving regarding Amatite roofing:

Gentlemen:

Five years ago we put our first roofs of Amatite on. Since that time we have roofed four other buildings with Amatite.

We wish to say in appreciation of your roofing that we never thought it was possible to procure a roofing of such quality for so little money. We have seen Amatite outwear tin roofs next door, as it were, to us, and our roof did not cost us nearly as much as the tin cost our neighbor.

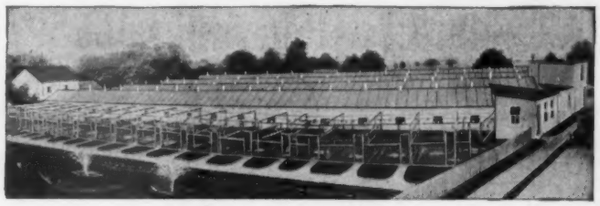
Amatite is all you claim for it, and in our opinion the best of modern roofing materials.

Very truly yours,
DOUGLASSVILLE SQUAB CO.

Douglassville, Pa.

Such letters mean something.

The success of Amatite is dependent entirely upon the well-known fact that it **always** proves satisfactory. The reasons are that it is made of Coal Tar Pitch—**the greatest waterproofing compound known,** and that it has a **real mineral surface.**



DOUGLASSVILLE SQUAB CO., DOUGLASSVILLE, PA.

Pitch is invariably used for underground waterproofing, and instances are known where it has resisted continuous water pressure underground for twenty-five years without deterioration or change.

The advantage of a **mineral surfaced** roofing like Amatite over one with a **smooth surface** is that the latter **needs** painting and Amatite **does not.**

You have no further expense or bother after Amatite is once laid. This means a great saving. A ready roofing which requires painting every two years will cost, after a while, as much for **paint** as for the **original roofing.**

In figuring the cost of painted roofings the cost of the paint must not be overlooked.

Free Sample

The best argument we can offer in favor of Amatite is a sample of the goods themselves. When a practical man takes a piece of Amatite in his hand he recognizes at once that it is thicker, heavier, stronger and more durable than the common kinds.

Send for a free sample of Amatite, and examine it carefully. It makes customers for us every time. Address our nearest office.

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New York Chicago Philadelphia Boston Cleveland St. Louis Minneapolis Pittsburg Cincinnati New Orleans Kansas City

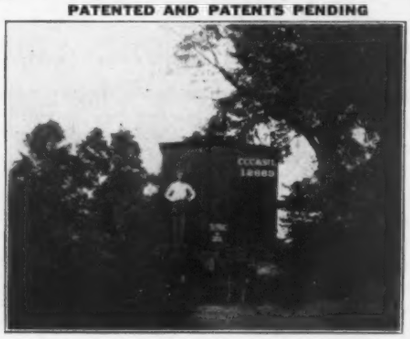
FOR BLASTING

Use the World's Only Successful Substitute for Dynamite

TRADE MARK **DYNALITE** REGISTERED

PATENTED AND PATENTS PENDING

For Crushed Stone and Silica Sand Quarries, Contractors, Stump Blasting, Ore and Slag Shooting, Clay and Shale, Oil and Gas Wells, Etc.



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Carload of Dynalite for Illinois State Penitentiary, Joliet, Ill.

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Always consistent in price and quality."
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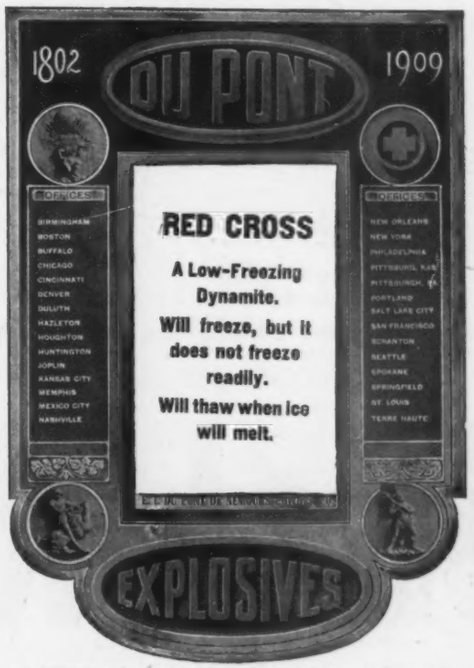

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Always the Same

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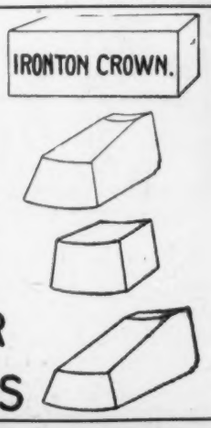

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GROUND CLAY FOR WALL PLASTER AND BOILER SETTINGS

DIRECT HEAT

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BANK SAND
GLASS SAND
ROCK, CLAY
COAL, ETC.

All Mineral, Animal and Vegetable Matter.

We have equipped the largest plants in existence and our dryers are operating in all parts of the world. Write for list of installations and catalogue S. C.

American Process Company
68 William Street, NEW YORK CITY

RUGGLES - COLES

DRYERS

RUGGLES-COLES ENGINEERING CO.
NEW YORK CHICAGO

The Cummer Continuous Gypsum Calcining Process
See Other Advertisement, Page 65
THE F. D. CUMMER & SON CO. Cleveland, Ohio
Seven plants in successful operation producing about 1,500 tons per day.

THE WINANT COOPERAGE CO.
Staves, Hoops and Heading for Lime, Cement and Plaster Barrels
MILLS: Pennsylvania New York Maine Virginia Ohio
190 CEDAR STREET NEW YORK, N. Y.

MR. JOHN L. WHEAT, President Utica Lime Company, Louisville, Ky., manufacturers of lime and cement, dealers in builders' supplies; under date of October 30th, states: "I value ROCK PRODUCTS very highly. I think that it is the best of its class with which I am acquainted.

Farrington Expansion Bolts

The most secure fastening in concrete as well as in stone. Send for Samples.
H. Farrington, 45 Broadway, New York

C. K. WILLIAMS & CO.
EASTON, PA.
The Largest Manufacturers in the U. S.
BRICK AND MORTAR
COLORING
OF ALL SHADES
CORRESPONDENCE SOLICITED. SAMPLES AND ESTIMATES CHEERFULLY FURNISHED ON APPLICATION.

Lime Kilns and Plant of Blair Limestone Co., Canoe Creek, Pa.
Designed by
Henry S. Spackman Engineering Company
42 N. 16th Street Philadelphia, Pa.

ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.

DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume IX. **CHICAGO, NOVEMBER 22, 1909.** **Number 5.**

Publication day, 22nd of each month.

THE FRANCIS PUBLISHING COMPANY

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BENJ. F. LIPPOLD. HENRY C. WHITTAKER. BERNARD L. McNULTY.

Communications on subjects of interest to any branch of the stone industry are solicited and will be paid for if available.

Every reader is invited to make the office of Rock Products his headquarters while in Chicago.

Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.

In the United States and Possessions and Mexico.....$1.00

In the Dominion of Canada and all Countries in the Postal Union..... 1.50

Subscriptions are payable in advance, and in default of written orders to the contrary, are continued at our option.

Advertising rates furnished on application.

Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

The problem of sewage disposal in the little towns is one which may will be considered by very many of them. It is the duty of the man who reads this to see that this number of ROCK PRODUCTS reaches the man in authority in his own town, to show him one good and economical way to secure such an improvement. It will help some.

Sand lime brick manufacturers have had little to say because they have been very busy making and marketing that very sightly commodity. The boomerang boomer has disappeared entirely out of this industry, and it has settled down to the proposition of making good brick for good money, and manufacturers are winning their share of the business on merit.

The rock crushing business, which in the last few years, has become one of the most important in the building material line, has been beaten out of the old-time ballast-making function of the railroads, and by the aid of able engineers better results have been obtained, so that the crushed rock supply of every market is a factor which the man who handles building materials must now take a part in. In most of the large cities and towns of this country the amount of crushed rock used for building and engineering purposes has doubled in the last two years, and this season closes with a pronounced increasing tendency. It is quite certain that another increase of 100 per cent may be expected in the next two years.

There is no business in the building trades that has a greater future than that of the plaster contractor. In recent years the attention to the development of better art in the disposition of the plaster specifications has come into vogue and a mere start at the present time has been made in comparison to that which is to come out. Foreigners are almost exclusively the best paid workmen in this line for the reason that they are capable of producing the best results. Somehow the American apprentices at the plaster trade do not seem to get the art idea which is essential for the greatest efficiency. The study of the higher branches of the plaster trade has in it all the possibilities of Aladdin's lamp we used to read about.

Both farmers and road builders have the great American love for the automobile to thank for much of the interest which has been awakened in the public mind in the matter of improving country roads. Nothing of greater importance and wider influence has been launched in recent years comparable to the good roads movement. The good roads department of the Geological Survey, together with the road commissioners of the various states, have found a ready response in the public mind to their demands for larger appropriations to obtain greater mileage and more careful specifications than we have ever had before. The history of road building in this country could be spun into a romance, and as Artemas Ward used to say, "Would make mighty interestin' readin.'"

Hydrated lime, by whatever name it may be sold in the market or used in the arts and industries, has introduced the only noticeable improvement at the commercial end of this venerable industry. Its uses in combination with plasters and cements is now well recognized and rapidly spreading in importance, and manufacturers whose requirements call for the calcium base in one form or another have found that the hydrate is the most economical way of handling their lime. The information that comes to ROCK PRODUCTS from the men who handle a large part of the product of the hydrating mills indicates that they have all had a busy season. As a matter of fact, the lime trade generally has done better in 1909 than for several years past for the reason that more improved plants with better facilities, both in the quarry and at the kilns, have been in operation. Only those who have invested in modern improvements are able to keep the pace with the times.

If every man who handles supplies and is in consequence an advocate of fireproof construction would make it his business to compile from day to day the statistics of property and life destruction by fire in his county, and keep the same conspicuously posted in his office, it would be read with interest by many practical builders as well as buyers of building materials. This has been done by one dealer of our acquaintance, and it is surprising how much attention and comment it has brought out, and incidentally it has been the means of starting a conversation favorable to the specification of fireproof materials. Such statistics, if gathered into one compilation, would be much more comprehensive than that now covered by the fire insurance interests, for a great many fires take place in buildings where no insurance is carried. As a matter of fact, a very large percentage of the inflammable buildings of the country are never insured and the destruction of these by fire does not show in the statistics usually published to the world as the total fire losses. When a man figures up the amount of money that goes into new buildings and compares it with the amount represented by the fire losses in the same community, and then adds to this the cost of maintaining fire fighting apparatus, plus again the cost of insurance in that same community he will have some astounding figures to contemplate. This applies to every community.

About the time this number of ROCK PRODUCTS reaches you, the Thanksgiving turkeys will have been slaughtered throughout the length and breadth of this land, and according to the ancient and very proper custom the time for giving thanks will be celebrated by the masses of the American people. This event practically marks the close of the active building season in all of the northern and central states, and it is the time when the business man naturally glances backward over the activities of the season which has just passed.

How many dealers in supplies are there who will recognize that they could have sold a few more cars of cement, of lime, of plaster, a few more loads of sand or crushed rock, a few more thousands of brick, or a few more lots of plaster board, corner bead or other building specialties? How many will realize this lack of better salesmanship in the builders supply business, which is the motif in many other lines, that adds to the volume of business under the same amount of fixed charges, and enormously enlarges the profits of the establishment thereby? While there are a number of prominent exceptions, for the most part salesmanship has been overlooked to a great extent in the builders supply establishments of the country. Unquestionably it would be possible in nearly every locality for the man who handles building materials to figure out a local problem of promotion whereby he could increase the expenditure of more money in his special line, and this is what every progressive dealer should do in order to get all out of his business that is in it. The meaning of enough business according to dear old Dr. Franklin is "just a little bit more each day," and this is the principle that makes the success of the world's great merchants. There are many supply men who can read and digest the suggestion herein contained with great profit.

EDITORIAL CHAT

Richard L. Humphrey, the much-chosen leader of the cement users of this country, is making an extended observation trip abroad. What he will have to tell us at the next convention to be held in Chicago in February will be well worth the price of attending the meeting, no matter how many miles one may have to travel. It is easy to promise this sort of thing for Mr. Humphrey—he always makes good.

H. L. Green, of the Concrete Stone Co., Waterloo, Iowa, is an expert concrete building material manufacturer. His concrete blocks have held a very high reputation for years, as well as his brick and ornamental specialties. He recently started a branch to manufacture concrete structural tile by the only Pauly system, and says without reserve that it is the real thing. "We just can't make them fast enough for the trade, although we are turning out about double the number guaranteed by Mr. Pauly, when we bought our machines from him." It's the same story everywhere.

J. T. Summers, Sterling, Ill., who is well remembered as the representative of the Perfection block machine, is operating in real estate, selling improved farm lands, and as usual doing some business for the old reliable Perfection every little while. He is as fat and cheerful as ever, and loves a good story with a point to it just the same.

Ernest Schmatolla, the world renowned expert lime kiln and gas burner engineer, originally from Berlin, has established temporary headquarters at 150 Nassau street, New York. He is receiving the cordial welcome of the most enterprising lime producers in the country, a number of whom are installing his kilns with gas firing in connection. Among these are the Charles Warner Co., Wilmington, Del.; Glencoe Lime & Cement Co., St. Louis, Mo.; Dittlinger Lime Co., New Braunfels, Tex., and the Summit Lime Works, Lethbridge, Alberta, Canada. We tried to get him to hang up his hat in Chicago and call it his future home, and may yet succeed.

James W. Wardrop, the "secretary with wings," of the National Builders' Supply Association, is making a specialty of organizing locals. The reports that we hear from the cities in his wake must be gratifying to him, and the dealers say that the "wings" suggestion is not at all out of place in this instance. How about that, Jim?

Harry May and Elmer Harding, two concrete block manufacturers at La Porte, Ind., were blown up by the explosion of a compound of paraffin and gasoline which they were attempting to make into a waterproofing medium. May died in a hospital a few hours after the explosion, and Harding the next day. The room in which they were working was heated by a small stove, and the theory is that the fatal accident was caused by the ignition of the fumes of the gasoline.

Walter Jannke, of the well-known supply house of Fritz Jahnke's Sons, of New Orleans, was a live member in the front rank of the Waterways convention in the Crescent city. He did credit, not only to his firm, but was the only vice president of the National Builders' Supply Association on the job. Don't the material men realize that there is a big melon for them in the improvement of the internal waterways? Wake up, fellows.

The Syracuse Wall Plaster Co. has just erected a new building to be used exclusively for the manufacture of cement products. This company has had an enormous demand for concrete blocks during the past season, so much so that they have at times been compelled to refuse orders. They will now arrange to run all winter, using "Hercules" machines and curing by steam.

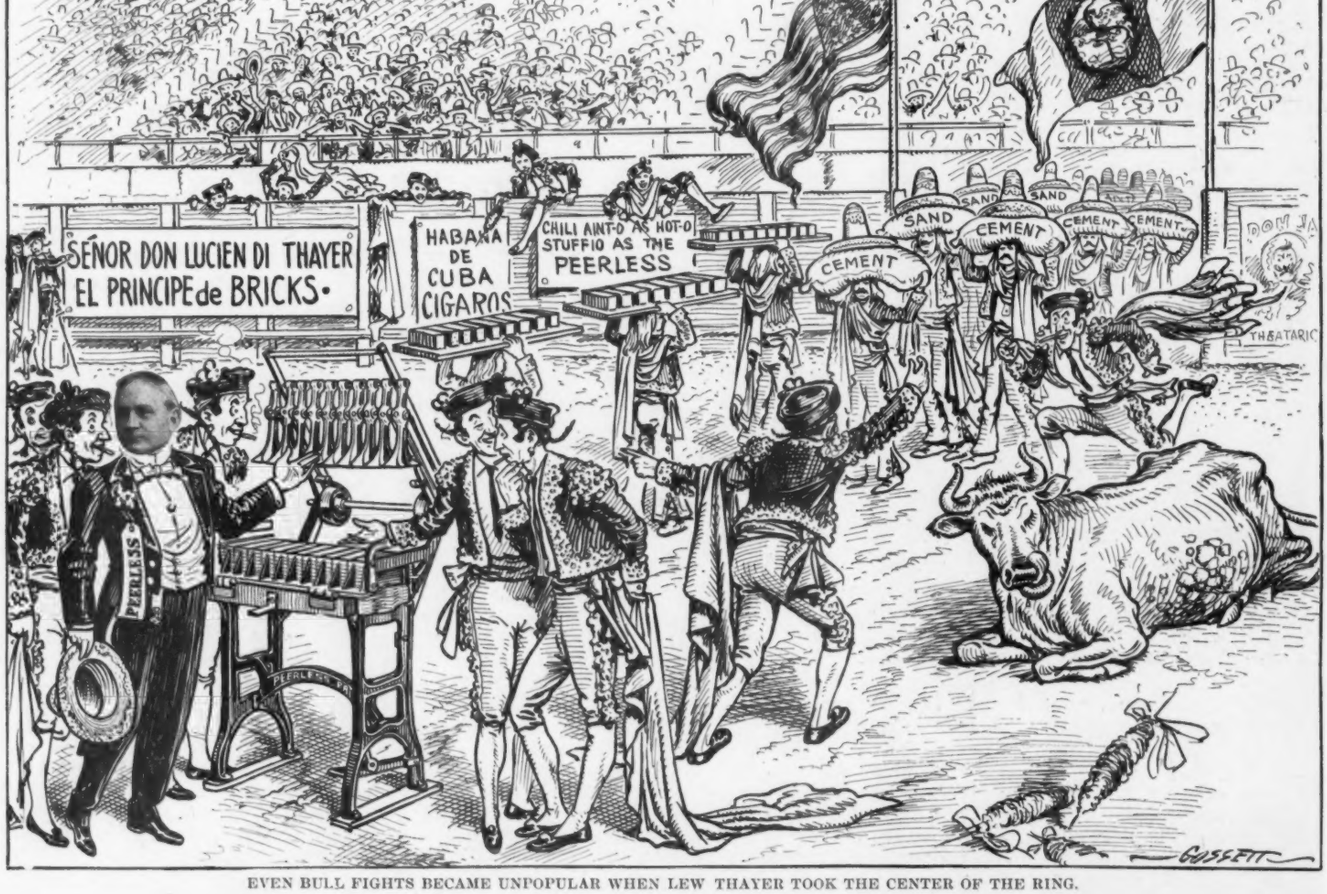
Thayer Conquers Mexico.

It is our pleasant duty to chronicle the conquest of Mexico by L. V. Thayer, of Minneapolis. He went General Winfield Scott one better in that not a single life was lost, in fact, the battles were only wordy ones, and from the way he bowled the Greasers over they could not have been real fights at all. It seems that from the very moment Thayer stepped on Mexican soil, the fates were with him (in fact, we might say by way of explanation, they are never absent when Lew is around) for all the bands began playing "Hail to the Chief," and "See the Conquering Hero Comes." It would never be suspected that the gentle, mild-mannered Lew is a hypnotist or mesmerist, or anything of that sort, but he certainly has winning ways.

Beautiful dreamy-eyed senoritas cast sidelong glances at Thayer's manly form and sighed like furnaces under their mantillas as he strode nobly through the rose-strewn paths, but Lew had no time for them. It might be said that if the fair American girls could not catch him, it is not surprising the senoritas of Mexico had no charm for him. We do not wish to be taken too literally on this subject, however, and can only say wait, time will tell. It may be, perchance, that some of the shafts struck deeper than was at first supposed and that what only seemed a pin prick might really have been a deep gash, but in the absence of any inside information (Lew doesn't wear his heart on his sleeve) we can only repeat—wait.

It was evident the fame of the mighty, illustrious, etc., etc., Americano had spread before him. Great bills heralded his arrival, the newspapers scrambled over one another to get interviews. His every word was seized upon with avidity by the industrious scribes as being of paramount importance Before long the entire country was ringing with his name. Here indeed was a wonderful man!

Everybody knows how Mexicans love a bull fight, and that it is to them what baseball is to the American. The mighty Lew was escorted with banners waving to the breezes and sounds of martial music to the great amphitheater where usually these gory combats delight thousands. The matadors and the picadors stood idly by, the horses enjoyed the well-



EVEN BULL FIGHTS BECAME UNPOPULAR WHEN LEW THAYER TOOK THE CENTER OF THE RING.

earned rest, while the savage bulls lay down and slumbered gently. The noble American bowed to the assembled throng. Great huzzahs rent the air. Hermann, Kellar, Thurston and other great magicians paled into insignificance in comparison with the wonderful Americano, for is he not chairman of the machinery division of the National Cement Users' Association? A man who could by the aid of a simple machine and a little sand and cement make 12,000 perfect bricks in a single day! It was amazing, it was startling. The Mexicans stood awed and spoke in whispers. Was it magic or was it real? Was the great Americano a real man, or was he endowed with some supernatural power? Again and again Lew showed with what marvelous ease his Peerless brick machine could be operated. The Mexicans stood by in open-mouthed wonder. Exclamations of incredulity were heard on all sides. But soon doubt vanished from their minds for there were the stocks of bricks, and they could touch them with their hands. Those bricks at least were real. There could be no joke about the bricks, for a brick is a very solid, substantial sort of a thing (you'd know it if the side of your head ever came in contact with one) and there they were, thousands of them.

For a time it seemed that all the Mexicans were from Missouri, but they soon became convinced and seemed imbued at once with the one desire, to own and operate one of these wonderful machines. It was at this psychological moment the wonderful Senor Thayer (for by this time he began to be addressed thusly) pulled out his contracts. One after another the Mexicans stepped up and planked down their coin and walked away with that mysterious piece of paper entitling them to a machine. Soon the mighty senor got tired taking in the coin and rested, for it was all too easy. He was afraid he was like little Nemo and had gone to Slumberland, but here he is back in the good old United States, the machines are being shipped, and we close the little story by saying that "Everybody lived happily thereafter."

The redoubtable Bert Halliday, of Cairo, is a firm believer in the waterway improvement. "That's where we get it both ways." And in connection with his supply business is he not also the main dredge man of the forks of the mighty rivers?

At the drawing for spaces in the Coliseum for the Chicago Cement Show next February, every number on the diagram was taken, and many who wanted space could not be accommodated. This speaks louder than words of the interest and importance which attaches to the coming convention among the building material interests. He who fails to make his plans so as to take in this great educational feature of the material business is pretty sure to miss a few important connections and later on some needful collections. Take the tip from ROCK PRODUCTS, and don't fail to look for that which your own business needs, because it is sure to be on exhibition or otherwise present.

Two distinguished Canadians recently visited our Chicago office. They are en route to the Canadian Northwest to look over their extensive operations in that direction. Messrs. Kennedy Stinson, of the Stinson-Reeb Builders' Supply Co., of Montreal, and J. Purvis Ritchie, of the Three Rivers Supply Co., of Quebec, both leaders in the plaster specialties and fire-proofing materials in Canada. Concrete structural tile under the Pauly system is the latest specialty reported as being popularly introduced. They are quick to recognize real improvements over the border.

A. H. Lauman, of the National Mortar & Supply Co., Pittsburg, Pa., and Gibsonburg, Ohio, says it has been a good business year from the standpoint of the lime trade. His "Banner Hydrate" has a well established demand throughout the entire eastern half of the United States, and is still growing.

Deputy State Engineer W. B. Landreth, in a recent lecture at Syracuse announced that the New York barge canal construction work is progressing at such a rate as will secure its completion within five years. About one-third of the work is already completed, which is a little ahead of the original schedule.

According to a local newspaper the city of Cedar Rapids, Iowa, experienced a lime and cement famine at the end of the month of October. All building operations were temporarily suspended, and there was much condemnation of the railroads for allowing such a thing to happen. Our editorial published just before this occurrence on the topic of carrying larger stocks of these indispensable goods might have been very profitably applied by some one or more of the dealers.

Chas. E. Kritzer, the well known lime hydrating expert, put into operation last week the plant of the Development & Funding Co. at Niagara Falls, N. Y. It includes a Kritzer continuous mixer, designed and constructed under the supervision of the Kritzer Co.

John L. Munn, Chicago representative of the Cyclone Drill Co., was in Milwaukee last week explaining the merits of the machine to the quarrymen of that city. Brother Munn, always good-natured and optimistic, has a particularly winning way about him when he tackles the drill topic.

During the first ten months of 1909, in Chicago, there was an increase of $24,936,600 in building operations over the same period last year. The month of October proved to be the greatest October in the building history of the city, the permits taken out providing for the construction of 986 buildings, at a cost of $7,603,400. The same month last year showed 980 buildings, and $6,242,315. From January 1 to November 1 permits were taken out for the erection of 9,860 buildings, involving an estimated cost of $76,957,980. For the first ten months of 1908 permits were taken out for 9,175 buildings, involving $52,021,380, an increase of 723 buildings and $24,936,600.

E. O. Eyer, Western manager of the Keystone Driller Co., Chicago, says the quarry trade is appreciating the churn driller for deep drilling. He has taken a number of orders for Keystone drills, among which may be mentioned the following: A No. 3 gasoline outfit for the Casparis Stone Co., Columbus, Ohio; a No. 3 traction steam for the Dixon (Ill.) plant of the Sandusky Portland Cement Co.; a No. 3 traction steam for the Dolese & Shepherd Co., Chicago, and a No. 3 electric for the United States Crushed Stone Co., at McCook, Ill.

F. H. Briggs, vice president and general manager of the American Dynalite Co., of Amherst, O., with T. N. Allyn, chief demonstrator of the company, passed a day in Chicago last week. Mr. Briggs reports that he is placing this new explosive, of which he is the inventor, in many quarries throughout the state of Wisconsin.

Among the throng at the national convention of Road Builders at Columbus, Ohio, the first of the month, was W. H. Loy, the energetic secretary of the Ohio State Stone Club, which is composed entirely of practical road builders. N. R. France, Charles Ireland, S. M. Hall and many others of that live organization were also on hand, not forgetting W. L. Taylor, who is at home in Columbus, and P. N. Dennison, the DuPont dynamite man who helped to smile every visitor into happiness.

L. W. Page, the government's expert at the head of the Geological Survey good roads section, added new laurels to his already well established fame at the Columbus road builders' convention.

J. P. Beck, the always fully prepared secretary of the Cement Products Exhibition Co., is somewhere near the busiest man of the cement industry these days. For all of that he keeps a fund of good humor on tap for all comers and still has some reserve capacity yet untouched.

J. W. Ellis, of Hamilton, New Zealand, director of Wilson & Co., Ltd., of Auckland, who are Portland cement manufacturers, lime manufacturers and general handlers of building materials and specialties of all kinds, was a recent Chicago visitor. He has been looking up all the best improvements offered in the American markets. He came straight to the ROCK PRODUCTS shop for he is a member of our big family of readers, and of course he got all the right steers in a bunch. Like most jolly Englishmen he warms up to his Yankee cousins.

This long stretch of good weather at the close of the season is pouring dollars into the pockets of the contractors with jobs nearing completion, and the material men who furnish the goods. Verily unto a good year's business is a little more added.

The great waterway convention recently held at New Orleans made distinct one condition, namely, that the movement for the improvement of the internal waterways of this country is an awakening of the people and not a transitory makeshift of vacillating political influences. The far-reaching economic features that appeal to every land owner and every industrial operator has piled up the interest in the movement until it is a veritable tower of strength. The politicians of the future will have to look well to their numbers and keep on the right side of the waterway question, or the names on the roster at Washington will materially change. It is no longer a question of molly-coddling engineers to make reports, but obeying the will of the great American people that the natural and free paths of commerce shall not go without attention. The waterways movement today is greater than any political party, for the well-recognized merits of the project have attracted the leaders of all parties and all sections. There is nothing left to do but to make a start and keep busy. The practical work will grow apace with the doing of it.

A movement has been started in cement and machinery circles headed by J. P. Beck, manager of publicity for the Universal Portland Cement Co., and general manager of the Cement Products Exhibition Co., of Chicago, to secure the erection of a Cement Industries building at each of the various state fair grounds. The present significance and growing importance of the uses of cement to the farmer makes this a most valuable suggestion. In place of a fragmentary and disorganized presentation of the important subject as has been the rule, such an establishment permanently featured on the fair grounds would have an educational value quite inestimable. The exhibits that would be attracted to the Cement Industries buildings would soon become the most interesting and practical of the whole meeting. It's a good idea, deserving, and the strongest personal support of every "cementer."

Charles F. Smith Talks About His Trip.

Charles F. Smith, vice president of the T. L. Smith Company, Chicago, recently returned from a tour in the South and Southwest in the interest of his firm. In commenting upon his trip Mr. Smith said: "I stopped in El Paso from Thursday, October 14, to Friday night, October 15. There is a large cement plant in construction near El Paso. I believe this plant is well along toward completion, and it bids fair to revolutionize business construction in that district. There are two large concrete buildings now under construction in El Paso, being about the first reinforced concrete construction of any importance which has been undertaken in that city. A great deal of interest is being evinced by El Paso people in concrete work, and it is my belief that during the next five years, a large amount of concrete work will be done at this point.

"A large amount of concrete work is in progress in Los Angeles also. In fact, reinforced concrete construction plays a very important part in Los Angeles building operations. Of course, the most important project in progress at or near Los Angeles, is the Los Angeles aqueduct, which is being extended fifty or sixty miles up the valley, in order to insure an adequate and reliable water supply. Work on the aqueduct is in full swing, but its completion will require a considerable length of time.

"Comment on concrete construction in San Francisco has been universal. Since the fire, this phase of building operation has assumed great proportions. I was in San Francisco during the Portola festival, which was particularly significant as emphasizing the cheerful and hopeful view of the business future of the city, prevalent among San Francisco people. My conversation with business men, while decidedly limited, gave me the impression that, although the year 1909 has been a prosperous one, an era of unprecedented business activity is just opening.

"In Denver I found that the mining field, which was hit pretty hard by the panic, is now recovering gradually. Among Denver business men it is expected that next spring will witness a very decided improvement in all branches of the machinery business. Here, as elsewhere, I found reinforced concrete construction is taking the leading position in the concrete field."

Demand Toledo-Chicago Canal.

FORT WAYNE, IND., Nov. 20.—At the Toledo, Fort Wayne and Chicago Deep Waterway Association convention resolutions were adopted demanding a barge canal from Chicago to Toledo and also an appropriation by congress to provide for a preliminary survey. The association is to be incorporated and a working staff will be organized to carry forward the canal campaign. Addresses were made by Congressmen J. A. M. Adair of Indiana and A. J. Sabath of Chicago; Henry Reisenberg, president of the Indiana Waterways Association, and R. S. Taylor, member of the Mississippi River Commission. Charles C. Copeland, of the New York Manufacturers' Association, expressed New York's interest in the waterway. Senator B. F. Shively of South Bend addressed the convention at the closing session.

WATERWAY.

Enthusiasm Is Predominate at the Big Convention in New Orleans—Stirring Resolutions Adopted.

Adoption of a stirring set of resolutions at the Lakes to the Gulf Deep Waterway convention in New Orleans has put the entire movement on what may be termed a political basis. The men composing the big gathering pledged themselves, regardless of party affiliation, to vote only for such candidates for public office as will promise to work for Federal action favorable to the waterway project.

The Lakes-to-the-Gulf waterway project had its origin in the minds of a few farsighted men who, from a study of the subject of transportation in other thickly populated countries and a study also of the particular territory concerned, with respect to its possible and probable future development—and to them and to every man who studies the subject their conclusions seem inevitable—pronounce the waterway an economic necessity.

The deep waterway movement began in 1905, but the first convention of the Deep Waterway Association was held in St. Louis in 1906, with an attendance of 1,100 delegates. As a result of that meeting a campaign of publicity was opened by the sending of 100 prominent business men from seven states to Washington, D. C., the first tangible result of which was the largest appropriation ever made by Congress for river and harbor improvement. The second convention, held at Memphis, had 2,300 delegates from nineteen states; the Chicago convention last year had 3,517 delegates from forty-four states. The meeting at New Orleans had 4,953 delegates.

It might be said that the convention really began in St. Louis this year, as the trip made down the broad expanse of the Mississippi by the president, the cabinet, senators, congressmen and governors, merchant princes and others was really a part of the great movement. This trip was a magnificent success from the point of view of the promoters of the great project for a fourteen-foot channel down the great river, for it has brought home more forcibly than anything else could have done the magnificent possibilities of the river and its tributaries as an avenue of transportation, and it has brought forth a suggestion, from no less a personage than Secretary of War Dickinson that the government, already controlling the river, might build and operate the boats to ply on it, thus maintaining competition against the railroads, which would give the people of the country a reasonable assurance of equitable freight rates.

The view taken of the suggestion by the secretary of war was one of enthusiastic approval, and as yet nothing has been heard to change this view. If the great river could be transformed into a splendid highway of commerce, with government-owned steamboats of modern construction, and with modern landing facilities, it would prove the best regulator of railroad rates, the great problem of the present day, that could be devised.

Heretofore the improvement of the Mississippi river has been considered by the country at large as a purely local project. This trip has broadened it into national scope, in everything this term might imply. That this is so is shown by the comments of the governors of Maine, New Hampshire, Vermont and Connecticut on the East, and the governors of South Dakota, Washington, Wyoming and Nebraska on the West. These gentlemen, or most of them, embarked on the trip in almost entire ignorance of the movement and its true significance. They started down the river expecting a pleasant jaunt, under delightful auspices, and gave no serious thought to the matter, or, as Governor Weeks put it, "Had you asked my opinion when we started, I would have said, 'I know nothing about it,' but now having it all revealed to me, I am in hearty accord, and believe my people will be also."

The assembling of so many governors of sovereign states, and their intimate association for five days and nights has brought about an entente cordiale between the several state governments represented that could not have been accomplished in any other way. As Governor Willson so aptly remarked, while each was at home and handling his own little problems believed that he was a distinct type, and his people were distinct, this association has shown them that we are all very much alike, that the people of the whole country are very much the same, and that what benefits one benefits all, and what harms one should be avoided by all. It has been the latest and most effective stroke in demolishing the lines of sectionalism that have left red streaks of rancor over the country, not only latitudinally, but longitudinally.

The following statement by Congressman J. E. Ransdell, who is president of the National Rivers and Harbors Congress, puts a clear light upon the results of the trip, and is interesting, coming from such an indefatigable worker for river and harbor improvement:

I am very much pleased with the trip and believe it will be productive of great good to the cause of improved waterways. We had representatives in congress, United States senators and governors from every section of the Union, and they not only traveled for more than a thousand miles on our great river, but listened for a week to constant discussions of every branch of the waterway subject. The eyes of the entire nation have been upon our fleet, and all the great newspapers have chronicled its movements and been filled with articles on the subject of its voyage. So much energy is bound to be productive of results, and I have such confidence in the merits of water transportation that these results, in my judgment, are certain to be most beneficial. We must not imagine, however, that we have won the fight and relax our vigilance.

The battle is still raging, and will continue for some time, but there are striking signs of victory on every side, and we must press on with renewed energy. When the Isthmian canal was being agitated many discouragements arose and the interminable delays made the heart sick, but agitation and education never relaxed, and at last the dream of mankind for four centuries is about to be realized. Surely the improvement of our internal rivers in order that our commerce may go down to the sea in ships at water rates, and be interchanged by water throughout the republic, is vastly more important to the average American citizen than the construction of the great canal of which we are all so proud.

There have been a great many prominent business men on this tour, and its educational effect on them is fine. Indeed, it has been a business man's trip even more than a congressional one, and I predict they will make themselves heard during the next session of congress.

The fourteen-foot project is such a mighty one, so complicated in its engineering features, and so costly that definite expressions thereon were reserved by most who discussed it, but all admit the vast importance of connecting the Great Lakes and the gulf, and favor the general idea without committing themselves to details.

I AM IN FAVOR OF DEEP WATERWAYS
TAFT—
COMMON PEOPLE
I'LL PUT ALL MY WEIGHT ON AND PLANT IT GOOD AND SOLID
SAY! BILL YOU WONT FORGET THIS WHEN CONGRESS MEETS WILL YOU?

PRESIDENT TAFT DECLARES HIMSELF.

We must continue to educate until the whole Union is informed on the great merits of this project, and must carefully study the other important waterway projects of the nation so that we may coöperate with them on just and popular lines. An excellent watchword for us would be, "Education, coöperation."

OPENING OF THE CONVENTION.

The convention was formally opened on the afternoon of Saturday, October 31. President Kavanaugh made his address, discussing the great project in the phases in which it appeals to the whole people, and voiced his hope that the trip down the river and the convention in New Orleans would result in such widespread education on the subject that the realization of the dream of the people of the Mississippi valley was not far off.

In his address Philip Werlein, president of the Progressive Union and chairman of the executive committee of entertainment, said:

Today the people of New Orleans may well be filled with pride, for here are gathered, irrespective of section or politics, the representative men of the entire nation. This gathering is for no light purpose. The Mississippi valley was not thoughtlessly added to the Union. It was believed that the day would come when the inhabitants of this valley would be numerous and powerful. It was realized that its people, occupying nearly two-thirds of the entire area of the present country, would some day be a dominant force on the continent. It was, therefore, of necessity to the United States that Jefferson completed its acquisition. When this had been accomplished all fear of an alien nation in our midst was removed, and in the contentment that followed the settlers worked out their destiny as best they could. Their wants were many, but their means of satisfying them few, and so for many years they hewed out the forests, tilled the fields, and finally in the midst of their fertile lands built great cities. The great rivers gave the needed communication with the sea, and New Orleans became one of the greatest trade centers of the world—second in America to New York alone.

Wild delight welcomed the coming of the railroads. Property values rose by leaps and bounds. Population increased a thousand fold. The country was developed and wealth followed. In the mad excitement, the simple lessons of economy were forgotten. The cheap, but slow, river boats were discarded for dearer, but quicker, railroads. The difference in cost was to begin with not too great, just cheap enough to secure the load. Rates at river points were gradually reduced low enough to make steamboat competition all but impossible. Bad roads, poor warehouse facilities and unsafe landing places were the additional handicaps. Thus, in a short time river trade dwindled, and finally practically disappeared. Then up went the rail rates and the valley people awoke and found themselves in the clutches of a transportation monopoly. This condition resulted in a general diversion under the long haul railroad doctrine until now everything possible is dispatched to the Eastern seaboard, with the corresponding building up of the Eastern ports at the expense of New Orleans. This result is harmful to all the valley, because all water transportation on most articles of import and export would be much cheaper and sufficiently expeditious.

The possibility of utilizing the river as a great inland harbor extending a thousand miles from the lakes to the gulf has long been recognized, but, besides opposition of railroad interests, there existed political reasons for its not being improved. These political reasons no longer exist. The hatred and antipathy that came between the people of the upper valley and those of the lower have disappeared. There has been for many years no hostile country through which commerce must reach the sea. For a long time now the Western farmer, the Northern miner and the Southern planter have alike sought closer personal and commercial affiliations by better means of communication, and have sought continuously assistance from the government. The people of the South revere the memory of Jefferson, who secured the Mississippi, and honor the character of Lincoln, whose voyage down the river revealed to him its necessity. From the time when Farragut passed the forts possession has been once more the source of contentment to the government.

The improvement of the river is essential to our progress, and to the people of the great middle West it has become an imperative need as a permanent safeguard against railroad extortion. The Panama canal, the survey of the Caribbean sea, and the completion of the Mississippi ship channel, all correlate as a means to an industrial and commercial awakening in the valley that will make its already great growth appear dwarflike.

These economic changes may be retarded, but opposition must finally give way. The obligations of the government to the people other than those on the Atlantic seaboard must be met. The people of the East must realize that in bringing their powerful influence to bear against these improvements they are developing a spirit that does not lead to permanency in our national relations. The people of the South, the people of the North and the people of the West must unite, regardless of any political faith, to insist upon a fair distribution of governmental beneficence. There must be a beginning to a change of policy. The purpose of the association—the deepening of the rivers between Lake Michigan and the Gulf of Mexico—has been declared feasible by the greatest engineers. The only difference of opinion is as to whether there is a practical use for it. The same arguments against this project were raised against the Panama canal. This work is more important to the people of the Mississippi valley than the Panama canal itself. The Panama canal will be useless to us without the river channel.

This convention must make it plain that no unnecessary delay by your representatives at Washington in urging and insisting upon the taking up of this work will be tolerated. The men of all the valley, from the icy waters of Lake Michigan to the sun-kissed gulf—from the snow-capped Rockies to the Alleghanies blue, should gather under one standard with this device upon it: "Dig her deep through Dixie!"

There was applause when Mr. Werlein spoke of the trip of Abraham Lincoln down the river, which had given him knowledge of its commerce.

Bishop Davis Sessums, of the Episcopal diocese of Louisiana, was then introduced, and delivered the invocation. He referred to the presence of the members of the delegations and leading citizens of the land which God has planted as a garden. He urged that they might put away hurtful competition, so that many may labor in fraternity and peace and feel the responsibility that uplifts humanity and may employ power and wealth, as a trust from God and that, looking beyond earthly power, they might seek that righteousness which exalteth a nation and devote their energies to causes that are acceptable to God. He urged that those who advocated another stage, the opening of another highway, should remember and appreciate those which have been provided.

Mr. Werlein announced that, as Mayor Martin Behrman, who was to have delivered the address of welcome, was detained at the luncheon, it had been decided to postpone that address for the present, and he would turn over the gavel to President Kavanagh, which he did, and the latter was applauded when he arose and delivered his address, which was as follows:

The plan for a deep waterway is an accomplished fact. What we need now is action. The history of the Mississippi river has been a story of inaction and of niggardly appropriations, which have been fought through the rivers and harbors committee, and through congress without rhyme or reason. The whole valley is sick with the congestion of its transportation system, and only this deep waterway can relieve it. The people of the Mississippi valley must have definite assurance that this carrier is to be completed at a certain date, and that date must not be much more remote than the completion of the Panama canal.

President Taft has seen the richest farm lands in the world crumbling from its banks, dissolving in its waters; he has seen levees that protect 32,000 square miles of this rich alluvial threatened by these caving banks; he has seen the remains of uncompleted revetments that have been torn away by the river, because a neglectful congress had not provided for their completion, and he has seen a thousand-mile channel unburdened by a single modern vessel, and the docks of its many cities unmarked by a single installation of modern apparatus. There was

a day when the Mississippi was considered an untamable stream, which shifted its channel and devoured its banks at will. Today we are able to show the president of the United States two remarkable changes. One of these is a river, which, in its most difficult and most readily shifting parts, has been bound down by the engineers to a fixed channel, with permanent banks; that has been forced to scour its own bed and permit the passing of deeper ships.

The other is a great garden land of soil worth from $100 to $200 per acre, capable of producing in crops every year enough money to pay many times over the entire cost of a 14-foot channel from Chicago to New Orleans, and this soil protected from waste only by those same engineering devices which have held the river in its fixed bed and which make the deep waterway.

We have shown President Taft this, and now we are ready to ask him to extend the revetments which do this work into every bend on the Mississippi, and to carry this deep waterway and the protection to farm lands adjacent to it throughout the course of the Mississippi. We wish to go further than this improvement, revetment and contraction, and to see some general plan adopted which shall cover the whole control of the water in the river, shall lessen the floods and give us a more general flow at low water, and at the same time restrict the channel. We believe that this work must be carried on not piecemeal by local divisions, and subject to occasional appropriations by congress, as has been done in the past; nor do we believe that this work should longer be subject to the annual arguments and machinations of a rivers and harbors committee.

Engineers have surveyed the route, and have declared a deep waterway feasible and easy of accomplishment. The best civil engineers have declared it inevitable. The people will no longer tolerate the "pork-barrel" method of compelling government engineers to allot funds for river improvements according to congressional districts, nor will they allow the development of the greatest of their highways to depend upon uncertain appropriations.

When Congress convenes this winter it will have to consider seriously for the first time the great problem of the conservation of water, which President Roosevelt saw, and, among other things, the establishment of some big central bureau, probably a department of public works, to undertake the entire control of our running water. But the deep waterway must not wait for this. In floods and in low water, a 14-foot channel can be easily maintained. Although in a recent report which established the feasibility and efficiency of the work from a constructive point of view the army engineers attempted to deride its commercial value, the presence of the chief executive and representative of 60,000,000 people here is evidence that the people believe the project is worth the money, no matter what the cost, and we submit the cost is reasonable. They believe, as President Taft believes, and as Theodore Roosevelt believed, in the efficiency of the waterways. "Give us the deep channels," they cry to congress, "and we will build ships and carry cargoes on them."

The question, "Do the people rule?" will be answered when congress meets and its members vote yes or no upon the question of the immediate execution of the plans for the 14-foot channel.

Everything which contributes to the cheaper handling of freight increases traffic and advances prosperity. The history of the Great Lakes stands glaring before us as the story of an enormous increase in traffic, depending upon three things—the deepening of the channels, the improvement of the steamboats and the establishment of the fastest and most economical loading and unloading machines. Many of us who believe strongly in the future of the valley have already incorporated and set about building up a large line to use the most modern types of boats and to get at every city terminal docks of the best European type. In ten years we hope to be carrying 20,000,000 tons of freight.

Somebody asked Secretary Saunders how many delegates there were. He held up the official list of registered names, made at St. Louis, and said there were 4,900, and offered to let the inquirer count them.

Then the band struck up "Hail to the Chief" as President Taft entered, and was escorted to one of two great leather chairs, and Governor Sanders was standing near. Mr. Kavanagh said, addressing Mr. Taft, that on arriving here he was very much pleased to find that the New Orleans Progressive Union, which was the host, had prepared a beautiful badge, which they hoped would long remind him of the trip from St. Louis to the Crescent City.

Mr. Taft arose and received the badge with one of his large smiles and there was great applause. The badge was a delegate badge with gold for the metal part, and properly inscribed.

Mr. Kavanagh then said to the audience: "I am going to present to you your own governor," and Governor Sanders stepped forward to introduce Mr. Taft. He spoke as follows:

Mr. Chairman, Friends, Neighbors and Fellow-Citizens: This most pleasing task has been assigned to me by the management of this convention. I am expected to introduce to this audience the man of men in these, our United States. I am here merely as an instrument of the committee, but I want to assure the president and all the governors and senators and representatives and business men who have made this journey to our own Crescent City that the heart of every Louisianian is wide open to receive you in our state today. (Applause.) If any of you don't see what you want, ask for it. (Applause.) Louisiana has an enviable reputation for hospitality, and when so distinguished a company visits our city, the metropolis of the South, as is within her gates today we not only welcome them with all the warmth of our hearts, but we feel proud, indeed, that they have selected this city as the ultimate end of their journey.

And now, my friends, I want to introduce to you a man, to use a hackneyed, but in this case a true saying, who, to know him is to love him. (Applause.) It has been my privilege and pleasure to make the major part of this journey on his own flagship, and, whilst I admired him and respected him before I set foot on the Oleander, I am here to testify today that this admiration and respect are now sweetened by the bonds of affection. (Great applause.) It makes no difference to us who know him in the hereafter, whether he comes to Louisiana and New Orleans as a president of the United States, or, in the years to come, as a private citizen, our welcome will be just as warm, just as sincere, and our affection just as deep. Through his kindly offices, through the gentleness of his heart, the strength of his mentality and the soundness of his judgment, through his love for his fellow-man, today, thank God, there is no South, no North, no East, no West. (Great applause.) From the Atlantic to the Golden Gate, from the Atlantic to the Mexican sea, he has journeyed, and everywhere he has found none but American citizens, and down here in Louisiana, in the far South, he finds us as loyal and true Americans as can be found in any state of the American Union. (Great applause.)

My fellow-citizens, I introduce, therefore, to this convention, our president, William Howard Taft. (Great applause.)

Mr. Taft, at the conclusion of Governor Sanders' talk, arose, looking as if he were a little tired, and gave the governor one of the broadside smiles, then began his address with the delightful jollying that he is famous for.

PRESIDENT TAFT'S SPEECH.

Governor Sanders, Mr. Chairman, Gentlemen of the Waterways Convention, and Ladies of New Orleans. I mention you last because you are the most important. I am "delighted" to be present [great applause and laughter]. You see, we adopt in our administration the Roosevelt policies to the full. But jesting aside, my dear friends, we are delighted to be here, first, because we are reasoning and responsible men who know a good thing when we see it, and any man who doesn't welcome an opportunity to come to New Orleans is lacking in all that goes to make up a reasonable man [great applause], and secondly, we are glad to be here because our coming indicates what we hope may be an epoch in the change of the character of transportation in this country. Don't misunderstand me. I don't think we are going to fill the bosom of the Mississippi with barges and ocean steamers tomorrow morning. The change which is bound to be effected with respect to that stream will come gradually. It will come with the demand that is certainly growing for an improvement in our transportation and a cheapening of that kind of transportation, to-wit, bulky merchandise, that ought to be carried more cheaply than it is today. This trip has been illuminating to many of us, not so much in offering a solution of the problem presented of trying to develop the Mississippi and of reducing that other kind of transportation which will be most beneficial to the country, but it has been illuminating in showing the difficulties that we have to meet and overcome in order that those rivers shall occupy their proper place in transportation.

Now there are a good many things that come to you when you sit down and think and devote attention to a problem. If your mind is directed toward railroad transportation and the building up of the country by that means, and if public attention is taken off of rivers and they are allowed to become nothing but sewers, it isn't in human nature that the problems presented by the rivers shall receive the attention which will insure the solution of those problems. [Applause.] We have seen human ingenuity trained and developed to the highest degree in the growth of our railroad transportation and the economy of the conduct of railroads, but the condition of our rivers and the apparently hopeless task of making them useful has drawn public attention from them, and there is not, in reference to river construction or river navigation, that improvement that we ought to have had in the last forty years.

I ask you what progress has been made during the last thirty or forty years in reference to river navigation? Now we have reached a point where we are bound to use our streams, because the amount to be carried will necessitate it. In Germany and in other foreign countries to which we are pointed to show what can be done in river navigation, the government exercises a control and says that, in respect to rates, certain of them shall be less on the river and that bulky merchandise must go that way, and what do we do? Why, we say to the railroads that if you will only arrange your rates so as to compete with the river we will permit you to make them so as to drive the river out of business. Now, that's what has been done, and while the river has served the purpose of regulating rates to a certain extent and reducing them, it nevertheless has not exercised that power and that influence which it might if it were actually used for the purpose.

Now the secretary of war yesterday suggested, although he is as far from being a government ownership man as possible, that perhaps it might be well to let the government experiment a bit in risking some capital; to put a few loads on the river to try and see whether something can't be done with that business. The question whether we can meet the point that you have got to have some means of gathering the business and getting it on the boat in order to compete with the railroad will not give rise to the suggestion that the government might establish stations on the river for the purpose of housing the merchandise to be sent by the river. All those are suggestions that will have to be worked out before we reach a satisfactory conclusion.

Now in St. Louis I said I thought that we ought to satisfy ourselves with respect to a great improvement of the river that would be useful, before we went ahead and invested all the money necessary, and that then we ought to invest that money quickly and issue bonds for the purpose, because that's the most rapid way. [Applause.] Now I think that we have—at least the great weight of opinion is that we have—solved the question of the navigation of the Ohio river for the purpose of improving the trade of that river, and if you are going to make the Mississippi a valuable stream you have got to depend upon the feeders to that stream, of which the Ohio, today, is far and away the most important. Now you say that I am from Ohio and that's the reason I think so [applause]; well, perhaps it is, but nevertheless there is a report in which the cost of that improvement has been gone into in detail, showing that the engineers have improved it to the extent of 9 feet of water, slack water throughout the whole year, and it will cost $63,000,000. Now I am in favor of going ahead with that which has been determined to be useful, by issuing bonds and completing those improvements [applause], because they have shown by the improvement already achieved that a solution has been reached and that it is practical. I am not in favor of delaying the Mississippi river improvement until the Ohio river improvement is completed [applause], but I am in favor of finding out what we ought to do in the Mississippi river, succinctly, and knowing what it would cost, before we go in and spend all your money. The use of a river for navigation is going to determine, a good deal, that which is needed in it for better navigation. That's the reason why the Kansas City method is the good method, and I am hopeful that, in some way or other, you can increase the amount of business on the Mississippi river. When I spoke of the Ohio river to a gentleman most interested in the Mississippi, he said: "Oh, well, pshaw! you have got a great coal company at the top of that river, and it furnishes the business." Well, of course it does, and that s the reason why we are in favor of the improvement. It has been demonstrated that the river will carry that coal, and we have got the coal to carry. And so it is with respect to the lakes. They have the iron ore to carry, and its value has been demonstrated time and time again.

Now you improve the Ohio river and we will give you more and more trade for the Mississippi, and in that way you will learn and develop, by investigation and actual experiment, what is needed in the Mississippi. I have been delighted to read, because I had otherwise a different idea, that the Mississippi has been improved, and improved greatly toward the lower end; that the Mississippi river commission, working through Louisiana and Mississippi, has developed a system of levees that are wonderful, to save a state of nearly 40,000 square miles, useful and most productive, for agricultural purposes. At the same time they have gone on and discovered means for stopping the sloughing off at the interior bends. By experiment they have found what will stick and what will not stick, and that we are making progress in spite of the fact that the progress isn't what it ought to be.

The Mississippi River Commission says that in order to carry on even this, it ought to have $2,000,000 a year, and certainly congress ought to be ashamed not to give it to them. [Great applause.] I am very sure that the speaker of the house, who, although he says he is only one member of the house, nevertheless, under the customs which have grown up is more or less a speaker for the house [great applause and laughter], is charged with a deep responsibility in regard to this great question, and is working as hard as he can to reach a just solution. It is a great deal when your movement has been carried to a point where you command the attention of those in authority to listen to what you have to say in your favor. [Applause.] You have brought it to a point where, to use a colloquial expression, we have got to get down to brass tacks [applause], and where mere general oratory in favor of a waterway doesn't suffice. It is a question of what you can do, how much will it cost, how long will it take and what will it result in. Now, when you address yourself to a body of business men such as this, and treat it as a mere question of transportation on a profitable basis, I haven't the slightest doubt that you will reach a conclusion that will appeal to those who have the responsibility of voting the money for the government, and that you will get what you desire in the ordinary time. [Great applause.]

THE VARIOUS COMMITTEES.

Names of the appointees at large on resolutions committee made by Mr. Kavanagh are:

Newton C. Blanchard, Louisiana; Thomas Wilkinson, Iowa; S. M. Neely, Tennessee; E. S. Conway, Illinois; James E. Smith, Missouri; Dr. W. J. McGee, Washington; Hon. Charles Scott, Mississippi, the latter being chairman of the committee on resolutions.

The names given in by the states for the committees, as far as they were in hand at adjournment, were:

Credentials—Alabama, R. Cobb; Arkansas, Major Fred C. Furth; Connecticut, Governor F. B. Weeks; Indiana, C. W. Wright; Kansas, O. W. Dawson; Kentucky, O. S. Barrett; Louisiana, Frank P. Haas; Minnesota, S. B. Nelson; Mississippi, J. D. Donald; New Mexico, W. A. Fleming; Oklahoma, G. E. Bucher; Tennessee, Phil Pigeon; Wisconsin, E. A. Edmonds; Texas, Fred Roberts; Georgia, John B. Gamble; Illinois, Hon. Silas Cook.

Resolutions—Alabama, John L. Burnett; Arkansas, Greenfield Quaries; Connecticut, F. T. Maxwell; Indiana, W. B. Richards; Kansas, W. R. Childs; Kentucky, J. Ed Gunther; Louisiana, C. B. Trotter; Michigan, Louis C. Spooner and Hon. Ezra Rust; Mississippi, J. D. Barkdull; Montana, W. G. Conrad; New Mexico, Francis T. Tobin; Oklahoma, M. H. Mosier; Tennessee, S. M. Neely; Wisconsin, H. H. Grace; Texas, R. E. Cowart; Georgia, J. R. Smith; Illinois, Hon. Henry Mayo.

Finance—Alabama, F. Y. Anderson; Arkansas, Colonel Charles C. Duke; Connecticut, F. T. Maxwell; Indiana, C. W. Hoff; Kansas, George H. Hunter; Kentucky, John W. Smith; Louisiana, Pat Welsh; Minnesota, James H. Davidson; Mississippi, Alex Y. Scott; New Mexico, Francis T. Tobin; Oklahoma, C. W. Campbell; Tennessee, J. C. Norfleet; Wisconsin, S. A. Cook; Texas, Ray Miller; Georgia, R. Y. Jones; Illinois, Hon. Theodore G. Risley.

SESSION OF OCTOBER 27.

David R. Francis, former governor of Missouri and president of the Louisiana purchase exposition, moved the adoption of the resolutions, which had been offered by Chairman Thomas Scott, of Mississippi, chairman of the resolutions committee. In his address Mr. Francis had said the time has come for action.

It is the duty of the federal government, and a crime if the government fails, to proceed along the lines which are laid down in these resolutions. Congress started the Panama canal in June, 1902, without asking or caring what might be the cost, and the importance of the Panama canal to the nation is infinitesimal in comparison with the development of the great inland waterways of the nation.

Mr. Francis thereupon moved that a delegation of 500 representative business men of the Mississippi valley be named by President Kavanagh, to bear the resolutions of the convention to the president and to the members of congress at Washington on December 8.

TEXT OF RESOLUTIONS ADOPTED.

The text of the resolutions adopted follows:

We, the delegates to the fourth lakes to the gulf deep waterway convention, the largest convention of the people of the United States ever assembled for the purpose of promoting commerce through the development of our waterways, comprising duly appointed delegates to the number of more than 5,000 from every state in the Union, do hereby resolve and declare:

It is our firm conviction and our fixed intention that the federal government should and shall without needless delay enter upon a definite policy and plan of waterway

development, beginning with the improvement of the Mississippi and Illinois rivers as the main trunk of a great waterways system, in such manner as to open effective navigation between the Gulf of Mexico on the south and the great lakes on the north; such main trunk to be developed without disparagement of and with constant reference to the concurrent effective development of the tributaries, the other great rivers of the country and their tributaries, the lakes, bays, bayous, and sounds of all sections of the country, and the canals and connecting passages required in and for a comprehensive system of inland navigation adapted to our great and rapidly growing commercial needs.

We find the warrant for our conviction and intention:

First—in the extent of the interior valley drained chiefly by the Mississippi, comprising as it does about half the area—and that by far the most productive portion—of the country, including the whole or parts of thirty great states.

Second—in the commercial needs of this vast area, which during the last half century have increased more rapidly than those of any equivalent area on the globe in all the world's history.

Third—in the ample ability of the interior states to bear the necessary burden of any commercial development required to meet their growing population and industries and in their hearty willingness to do this except insofar as they are estopped by those constitutional provisions which impose the duty on the federal government.

Fourth—in the indifferent and virtually repressive policy hitherto pursued by the federal government under which the navigation necessary to proper commercial and industrial development has been permitted not only to fall far behind the growth of the country but actually to decline, and nearly disappear from the finest and grandest natural waterway system of the world. And,

Fifth—in the vast and vigorous and progressive population of the interior valley, comprising more than half the people of the United States—and we declare that the voice of the sixty million inhabitants of this interior must and shall be heard.

In demanding the development of our interior waterways we adopt the policy of proceeding both promptly and on broad lines, in such manner as not to obstruct but to promote the general commercial and industrial progress of the country and the general welfare of our people, and we affirm our right, as delegates duly empowered to represent commercial and industrial organizations and the people generally, to form and express final judgment concerning the commercial needs of the interior and of the country as a whole.

Accepting and indorsing those portions of a recent report by a special board of survey composed of United States engineers which demonstrate the complete practicability of the lakes to the gulf deep waterway, we repudiate and condemn that portion of the report declaring against the commercial expediency of and necessity for the project, and we affirm our fixed conviction that the vast and rapidly advancing commerce of our interior, already reaching annual transportation costs of fully a billion dollars, absolutely demands the opening of a waterway from the great lakes to the sea, not less than fourteen feet deep, and adapted to modern terminal and transfer facilities.

We deny and condemn the fallacious theory that the need for waterway development can be measured either by the amount or by the absence of water-borne commerce before the channels and terminals are properly developed; we hold, on the contrary, in accordance with the experience of all countries, that the judicious development of transportation facilities promotes the volume and diminishes the cost of commerce.

We commend the plans and work of the Mississippi river commission looking toward the concurrent development of channels and the adjacent lands through a system of revetment and levees and approve the extension of this system to the complete protection of the overflowed lands, the drainage of swamp lands, the abatement of floods and the control of the waters in such manner as to insure the highest utility for navigation and all related purposes.

Holding that the Mississippi and other waterways should be developed under a broad and comprehensive plan, recognizing all uses of the waters or benefits to be derived from their control, we adhere to the principle arising in our constitution and incorporated in statutes recently enacted in several states, that the waters belong to the people, and maintain that this right of the people is inherent and indefeasible, and, while recognizing the necessity for administering this invaluable possession of the people by state and federal agencies, each within its appropriate jurisdiction, we deny the right of municipalities or of state and federal governments to alienate or convey water by perpetual franchise or without just consideration of the interests of the people.

We require more definite information, to be made available through the census bureau or other appropriate federal office, concerning the uses of our waters in all ways affecting navigation, including municipal and domestic supply, irrigation, manufacturing, and power; and if further legislation be needful, we demand its enactment to the end that a complete census of our rivers and other waterways may be made as a basis for the development of navigation in connection with interrelated industries.

We affirm our conviction that it is the duty, and is within the constitutional power, of the federal government to exercise jurisdiction over terminals and over the connections with other transportation agencies required for the development and maintenance of waterways transportation; and we hold that the regulation of terminal and transfer facilities is not only essential to, but is an integral part of any practicable system of commercial navigation.

We commend the actions of President Roosevelt in creating and of President Taft in continuing the national conservation commission appointed to investigate these natural resources of which all are interdependent with our rivers and on which the future growth of our people must rest; we commend the wise action of nearly all of our states in creating commissions of like purpose; and we demand early and effective legislation, both state and federal, for the maintenance of those agencies for the public welfare.

We extend the right hand of fellowship to all other organizations and assemblages of citizens devoted to the development of our waterways; we commend their zeal and share their enterprise and declare our intention to coöperate heartily in every movement looking toward the development of our natural waterway system, the finest in any country, and its full utilization for the public welfare.

Fully convinced that the development of a comprehensive system of inland navigation, having the Mississippi as the main artery, would greatly promote our commerce, augment our industries, and advance general welfare, we insist on the development of our waterways as an investment rather than a succession of piecemeal experiments, and demand that it be done in accordance with business principles and in such manner as to protect the people for whom the investment is made.

In the view of the facts the fourteen-foot lakes to the gulf waterway has been declared practically feasible by a special board of engineers created by act of congress, that all necessary surveys and working plans have been made, and that appliances and men are ready whenever funds are provided, we demand that the work begin with that project, and if the condition of the federal treasury require, we indorse and approve a bond issue, and we favor the issue of any such bonds in small denominations bearing low interest to the end that the investment may be made by citizens rather than by any alien or vested interest, and may thereby serve to strengthen the solidarity and stimulate the patriotism of the American people.

Believing in our hearts that the needs of the country and the fundamental principles of our government set forth herein involve moral no less than material issues, and agreeing that the time has come for us and the other citizens we represent to exercise our constitutional powers by the means provided when the constitution of the United States was framed, we, the delegates in this convention assembled, representing more than half the people and three-fourths the productive energy of the United States, do hereby deliberately and firmly and in the full realization of our duties and responsibilities demand and direct that a definite and vigorous policy of waterway improvement, beginning with the lakes to the gulf deep waterway, be adopted and put in operation by the national government without delay.

To the enforcement of this demand we pledge our individual effort and our united support, and we hereby publicly pledge our personal honor, each for himself, and to each other, to support no candidate for public office who will not unqualifiedly indorse and maintain that policy.

LORIMER SCORES ENGINEERS' REPORT.

Senator Lorimer, of Illinois, who was introduced by President Kavanagh as the "father of the deep waterways," administered a grilling to the report of the army engineers on the cost of the waterways. Senator Lorimer presented an exhaustive study of the whole problem, and received a cheer from the delegates. He said:

I don't blame these men who have not studied the problem thoroughly for being cautious. They have said as much and more than I would have dared to say before I studied the problem.

But no one questions the feasibility of the fourteen-foot channel between Chicago and St. Louis, or of a twenty-four-foot channel, for that matter. You may investigate from now to doomsday; you may secure what engineers you may; they may study the river and the problem, and they will be forced, on their honor, to report that a fourteen-foot channel between Chicago and St. Louis is feasible.

United States Forester Pinchot closed the session with a few hot shots at Secretary of the Interior Ballinger and concluded with a deep waterway boost.

THE CLOSING SESSION.

President Kavanagh opened the meeting and read a letter from Minister Arosemena, of Panama, who sent a paper, being unable to remain. The paper was read by Col. G. H. Morgan, of St. Louis. It dealt with the importance of the Panama canal and the Mississippi river development and commented on their historical connection.

Mr. Kavanagh announced the appointment of Christopher F. Wiehe, of Chicago, on the executive committee.

Mr. Kavanagh said the delegates had not had a chance to say anything and he offered them a chance to talk five minutes each.

Thomas J. Dolan, of Chicago, talked first, and objected to the army getting the credit for the Panama canal. He belongs to the International Steam Shovelers, and said if the practical people were left in charge they could finish the canal in four years.

T. R. McVeigh, of Illinois; Ezra Rush, of Saginaw, Mich.; James H. Davidson, of St. Paul; Senator A. C. Clark, of Chicago; Colonel Clark, of Montana; W. G. Conrad, of Montana; Dr. G. H. Tichenor, of New Orleans; J. N. Lyle, of Texas; Thomas R. Wilkinson, of Burlington, Iowa; Francis T. Tobin, of New Mexico; John Craft, of Alabama; John B. Gamble, of Georgia; Silas Schaefer, of Illinois; Greenfield Quarles, of Helena, Ark.; S. E. Simonson, of Luxora, Ark.; C. W. McKitthen, of Woodville, Miss., also made short talks.

Charles T. Madison, of Oklahoma, spoke of the faithfulness of that state in adhering to the waterways plan. Mr. Madison is a well-known New Orleans man who has been transplanted to the Indian country.

The Guatemalan delegation was introduced, Minister Herrate presenting the other members. Minister Herrate addressed the convention as follows:

Francis T. Tobin, of New Mexico, spoke enthusiastically of the entertainment at New Orleans, and offered a vote of thanks. It had been done once, but it was done again with enthusiasm.

President Kavanagh said that if after congress adjourns another meeting is needed it should be left to the executive board, and this was voted.

The convention adjourned subject to the call of the governing board.

CEMENT

Cement Manufacturers to Meet.

The annual meeting of the American Association of Portland Cement Manufacturers will be held December 13-14-15. As is customary the meeting will be held in New York city at the Hotel Astor.

Review of the Cement Situation.

There is still talk to the effect that cement will advance in price before long. Most manufacturers had hoped that it would do so before this, but they now almost with one accord say the advance will come with the opening of the new year. Pessimists who are always claiming that the combination would raise prices have been forced to admit that there is no combination, or, if there is one that it is not working. In New York, especially, it is asserted, the combination will raise prices 20 cents a barrel, but there is really no foundation for the rumor. The real facts in the matter are that supply and demand regulate the price of cement, just as they do in any commodity. That the demand has materially increased is not questioned, and some of the mills are sold up to capacity at the present time. But the increase in the number of plants and also the increase in capacity of the mills over last year must be taken into consideration to really understand why prices have not soared higher long before this. With the same demand a few years ago prices would have reached an almost prohibitive figure. Since then many new plants have come into existence, and many of the older ones have materially increased their output, until today the cement product is over 60,000,000 barrels a year. Even with the multitude of new uses to which cement has been put, manufacturers are still ahead of the demand, and until the two are equal, or the demand gets ahead of the supply, material changes in the market are not to be looked for. Cement has more than held its ground and is rapidly gaining in favor despite the fight which has been made on it from every quarter.

What the cement manufacturer is confronted with more than anything else is the danger from the misuse of the material. All danger from bad or poor cements has long since been eliminated, because methods of manufacturing have been so far perfected that no country can manufacture a more uniform product than the United States. Nearly all the failures of cement to do what was asked of it in the past were not the fault of the material itself but because of the lack of intelligent workmanship in mixing and handling.

With a more complete understanding between the manufacturer, the dealer and the user, fostered by the trade press, the danger of failure has been reduced to the minimum. That this danger will, by further education along the same lines, be eliminated entirely, goes without saying. The cement manufacturer has come to realize that the best method to sell his product is not to speak disparagingly of his rival manufacturer's product, but to instruct the user of cement. All cements are good, some are better, but none are bad, and it is time for the manufacturer to realize that a broad plan of education will result in more real good than all the energy expended in trying to down a competitor's brand, thus creating a distrust in the minds of the users.

With all the gigantic projects under way, and with all that are contemplated in the near future, and with a better understanding all around, the future of the cement industry is indeed rosy.

Canada's Cement Merger.

Following are the details of the new combination effected among the manufacturers of cement in Canada, furnished by Consul A. G. Seyfert, of Owen Sound:

According to the returns made to the Dominion government by the cement manufacturers of Canada, the average price obtained by them at their works during 1908 was $1.39 per barrel. This was the lowest price ever reported by the Canadian mills. In 1906 the average price was from $1.65 to $1.70, and in 1907 about $1.60. At the beginning of the present year it was alleged by a number of manufacturers that even without any increases in price the business would be rendered more profitable by merging the large competing companies into one gigantic concern so as to be able to control the price and the output. The Canada Cement Company is the result, with a capital of $30,000,000. The new company will own and control cement-producing plants at Montreal, Lakefield, Shallow Lake, Owen Sound, Calgary, Belleville, Hull, Marlbank, Port Colborne, Exshaw, and Quebec. These localities include points from the St. Lawrence River to the Rocky Mountains.

The object of the merger is to eliminate the present excessive freight charges by distributing from the plant nearest the demand of the consumer, also to do without competitive salesmen and middlemen. The plants included in this combination are among the best constructed and most efficiently equipped in existence, with a capacity of 4,500,000 barrels of Portland cement annually. During 1904 Canada manufactured 908,990 barrels of Portland cement and consumed 1,694,988 barrels. Almost one-half, or 784,630 barrels, were imported. In 1908 the consumption was 3,134,338 barrels, and the output 3,495,961 barrels, while 469,849 barrels were imported, which means that there was a surplus of 831,472 barrels on hand at the beginning of the present year. This caused a general depression in the cement industry and a reduction in prices to such an extent that the most of the plants were closed for the time being.

Inasmuch as the capacity of the output of the merger is greater by a million barrels than the annual consumption, it would appear as though the aim of the company was not only to control the output, but the market of the Dominion.

Canada is rich in the raw material—marl, limestone, etc.—that enters into the manufacture of Portland cement. Promoters have taken advantage of these opportunities, and cement plants were organized all over the country during the past decade. The result is that the production is greater than the demand, and much money has been lost by the honest stockholders, for the promoter was not always too honest. The reorganization is not only to put the industry upon a paying basis, but to aid as far as possible many localities where valuable cement plants are located and which are the main local industry.

Among the names as directors of the new company are those of several Americans who are prominent in the American cement industry, which would mean that American capital is being invested in the organization of Canada's Portland cement industry.

Trinity Cement is Popular.

DALLAS, TEX., Nov. 19.—A heavy demand is reported for Trinity cement from all points of Texas, the brand made by the Southwestern States Portland Cement Co. The company now has three kilns in operation at its new plant near Dallas. Its packing plant is running to full capacity and the company is much pleased with trade conditions.

Morgan Portland Cement Co. Buys Land.

ALLENTOWN, PA., Nov. 19.—The Morgan Portland Cement Co., recently organized with a capital stock of $1,500,000, has purchased 98 acres of land and secured an option on nearly as much more. Chemical analyses of the stone found on the property have been made by Lathbury & Speckman, of Philadelphia, and it has been found highly satisfactory. The company is now in the market for machinery and equipment of all kinds. The officers are R. J. Hester, president; H. L. Burtley, vice president and treasurer, and E. W. Morgan, secretary. The directors are Hon. Thomas B. Morgan, Harry W. Davis, R. J. Hester, H. L. Burtley, H. C. Bedford and Andrew C. Wylie. It is expected that construction work will be commenced early in the spring and that the plant will be completed late in the fall. It will have a daily capacity of 2,000 barrels.

New Cement Plant in Maryland.

Work has been begun upon the large plant which the Tidewater Portland Cement Co. is building at Union Bridge, Maryland. A railroad has been run from the main line of the Western Maryland railroad through the property of the cement company, and a large force of workmen have been employed for some time in grading and foundation work. The first unit of the plant, which will consist of five of the most modern type of lime kilns together with a fully equipped hydrating plant having a capacity of 200,000 barrels of lime annually, will be ready for operation February 1st.

The deposits of raw material at this point consist of very pure white limestone, containing between 98 and 99 per cent carbonate of lime. The shale deposits lie directly adjacent to the limestone deposits. In fact the two could be worked in one quarry if necessary. Both materials have been tested by experts and pronounced suitable for the manufacture of the highest grade of Portland cement. The limestone will also make the very finest white building lime and hydrated lime.

A novel feature of the output will be the manufacture of a white Portland cement. This will be made from the company's limestone, which contains barely a trace of iron, and white clay.

The plant will be designed and built by the Fuller Engineering Co., of Allentown, Pa. The kilns will be 8' in diameter and 125' long. The raw material will be dried by the waste heat of the kilns. There will also be an extensive clinker storage, thereby insuring a sound and uniform product. White Portland cement will be manufactured in a separate unit, immediately adjacent to the main unit. The fixed charges and operating expenses in the manufacture of the latter will thereby be reduced to a minimum.

The officers of the company are: President, John K. Tener, a member of the River and Harbors Committee of Congress and a prominent Western Pennsylvania banker and manufacturer; vice president, Joseph T. Fanning, of New York; treasurer, Edgar D. Newman, president of several banks in the valley of Virginia; secretary, Owen B. Murphy, of New York; chemical engineer, Richard K. Meade, the well known cement expert; consulting geologist, Dr. Wm. Bullock Clark, head of the geological department, Johns Hopkins University.

The financing of the Tidewater Portland Cement Co. is in the hands of the Republic Finance Co., 115 Broadway, New York. It is expected that the cement plant will be in operation by the spring of 1911.

Marquette Cement Co. Moves Sales Office.

On November 10, the general sales office of the Marquette Cement Manufacturing Co. was moved to its works at La Salle, Ill., where all future correspondence pertaining to sales or shipment should be directed. This change has become necessary because of the largely increased business and will enable the company to give its patrons more careful attention and better service than heretofore. The sales office will be in closer touch with every detail of the manufacturing department and in better position to look after the interests and meet the various demands of their trade. The company will retain its present office in the Marquette building in Chicago, and Gold Williams will be Chicago representative in charge of local sales, advertising and traffic departments.

Secure Two Good Orders.

ELK RAPIDS, MICH., Nov. 18.—Two good orders have been booked by the Elk Cement & Lime Co. One was for 3,000 barrels of Elk Portland cement to be used in the construction of a new factory building at Wells, Delta county, by the Michigan Extracting Co. This company had previously purchased 2,000 barrels. Also last week the authorities of the city of Cheboygan placed an order with the Elk Co. for a large quantity of crushed stone to be used on the city streets. They had been using a softer lime rock, but after investigating the condition of the streets in many places where Petoskey rock had been used, decided that this stone is much more serviceable for road purposes than the ordinary run of lime rock.

New Cement Plant For Idaho.

ORO FINO, IDAHO, Nov. 16.—A movement is on foot to establish a Portland cement plant here with a capacity of 2,500 barrels a day. At the head of the corporation is J. S. Irvin, of Ottawa, Canada, managing director and head of the International Portland Cement Co., capitalized at $2,000,000, and of the Ex-Shaw Portland Cement Co., of Alberta. Dana Childs, a Spokane millionaire, is heavily interested, as is C. A. Reid, vice president of the Union Fuel & Ice Co., of Spokane, who will be general manager of the plant. R. B. Hassan, engineer in charge, and F. J. Klossoski, his assistant, have completed the survey for the plant. Two hundred and twenty-three acres of land have been purchased containing a lime and clay bed of which Engineer Hassan says: "I've dreamed of such things, but never before saw them in existence."

The Cowell Cement Plant.

A friend of ROCK PRODUCTS, traveling in the West, sends the following interesting news regarding the operation of one of the California cement plants which will be of interest to our many readers:

On my trip to the Pacific coast I had occasion to pay a visit to the Cowell cement plant, at Cowell, Cal., of which E. V. Cowell is the president. Upon arrival I met E. U. Leh, the superintendent, who is always ready to extend every courtesy possible to visitors. Being somewhat familiar with cement plants, having visited many of them throughout the United States, I was very much interested in looking this one over. Mr. Leh took charge of this plant the first of January and before he could operate it he had to reconstruct it, as many changes were necessary in order to accomplish the desired results. This occupied the time from the first of January to the 25th of March. Since then the product of this plant has been known as the "Mt. Diablo Portland Cement," and gained an enviable reputation second to none on the Coast, and possibly second to none in the country. Wherever I have been, from the state of Washington to the southern part of California, this brand is seen and used.

The location of the raw materials, which are in juxtaposition, and of the highest grade for the manufacture of Portland cement, and many other advantages, including the reconstructed mill, and being under the management of a very able man who has spent almost all his life throughout the United States in various plants manufacturing cement under different conditions, such as wet, semi-wet and dry process makes it one of the best plants on the Coast today, and it is only natural to expect that the highest grade of goods will be turned out.

The shipping facilities are of the best, both rail and water, which makes it possible for this concern to market its product along the Pacific coast with comparatively small expense. Through the untiring efforts of W. H. George, secretary of the company, this cement has been distributed in almost every city and town along the Pacific coast and it is due to him that the product is so well known. These gentlemen deserve a great deal of credit for what they have accomplished in so short a time, and the writer wishes them unlimited success.

Canada Cement Co. Election.

C. H. Cahan, K. C., has been elected first president of the Canada Cement Co., Ltd. It is also stated that C. C. Ballantyne has resigned as director of the Consolidated Rubber Co. and the Canada Rubber Co. to become a member of the executive forces of the Canada Cement Co. General Manager F. P. Jones of Dominion Iron & Steel has resigned to become manager of the Canada Cement corporation.

Strange Question Raised.

One of the curious difficulties that builders of concrete factories have had to overcome is the complaint of employees in such factories that the concrete floors are hard on their feet. Because of this complaint some prospective builders of new factories have hesitated about concrete construction for their shops. But others have gone ahead and built concrete factories and have insisted that their employees wear thicker soled shoes than they ordinarily do to protect their feet.

Another fear on the part of prospective builders is that the concrete structures, being of monolithic construction, will not stand the vibration of machinery. This fear seems groundless. The big concrete factories of the United Shoe Machinery Co. stand the vibration of the heavy machinery, even the blows of the trip hammer. An interesting experiment in New York shows the stability of the concrete structures. A 9-story concrete building is used by a printing firm. The presses operate rapidly, and cause vibration in an ordinary building. On the seventh floor of this building, a coin was stood on the edge of the press bed, and it stayed there until it was removed. There wasn't sufficient vibration to knock it over.

The United States Shoe Machinery Co. is apparently much pleased with concrete buildings. After erecting the original factories at Beverly, it erected a big addition of concrete. Some shoe manufacturers are following the lead of the United Shoe Machinery Co. Rice & Hutchins are building a shoe factory of concrete at Rockland. The Hood Rubber Co. is building its second rubber factory of reinforced concrete in the south shore district. The R. H. Long Shoe Co. has erected a concrete shoe factory. Milwaukee tanners have also erected factories of concrete.

Concrete in the Gatun Dam.

The mere mass of the concrete floor and side walls of the locks at Gatun will be sufficient to give them great stability; but with a view to adding a further safeguard against rupture in the event, say, of earthquake shocks, the government engineers intend to re-enforce the concrete by imbedding in it no less than 7,000 tons of old rails. This metal consists partly of a light rail which was used during the era of French construction, and partly of more modern American rails, which have been so badly bent that they can be no longer used in the track.

Pacific's First Concrete Pier.

The first concrete pier on the Pacific coast, and a big one it is, has been completed recently. Extending in a straight line 1,600 feet out into the Pacific ocean, this latest example in wharf construction is at Santa Monica, where the longest wharf in the world—the Southern Pacific railroad's pier at Port Los Angeles—is already located.

So far—and the piles of the landward end of the new pier have been in position for several months—the sea has not made the slightest impression on the concrete posts. Teredos, those sea worms which make the life of the wharf builder a continuous nightmare, are powerless to penetrate the new piles; barnacles cling to them in small numbers, but can do no damage, while the strongest waves of the sea break aimlessly against the smooth concrete and without deleterious results to the wharf which they support.

Building Concrete Villages.

The industrial village of Mineville, N. Y., near Port Henry, is gradually being transformed from a collection of wooden shacks to one of imposing buildings of concrete. The village is near some rather extensive mines and in the heart of what was once a great forest, but wood is now being supplanted for all purposes. One of the factors which led to this extensive use of concrete was the possession by the company of a very superior aggregate in the shape of the "tailings" or residue left after the separation of the ore. An immense heap of these tailings gives a seemingly inexhaustible supply of aggregate and tests have proved that cement mixed with the run of tailings in the proportion of one to five produces a superior concrete. Other mine owners are investigating the Mineville situation.

FOR THE RETAILER

The National Builders' Supply Association

Meets Annually.

OFFICERS

Frank S. Wright, Chicago.....President
Harry W. Classen, Baltimore.....Treasurer
James W. Wardrop, Pittsburg.....Secretary

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California.....C. J. Waterhouse, San Francisco
Delaware.....Charles Bye, Wilmington
District of Columbia.....S. D. Lincoln, Washington
Georgia.....P. G. Hanahan, Atlanta
Indiana.....H. B. Lyman, Lafayette
Illinois.....H. H. Halliday, Cairo
Iowa.....R. Hay, Dubuque
Kentucky.....Owen Tyler, Louisville
Louisiana.....John J. Voekel, New Orleans
Maryland.....J. J. Kelly, Baltimore
Massachusetts.....B. F. Marsh, Worcester
Michigan.....S. J. Vail, Detroit
Missouri.....Howard McCutcheon, Kansas City
Minnesota.....F. J. Nixon, Duluth
New Jersey.....Ambrose Tomkins, Newark
New York.....M. A. Reeb, Buffalo
Ohio.....E. S. Walton, Youngstown
Pennsylvania.....Cyrus Borginer, Philadelphia
Rhode Island.....C. M. Kelly, Providence
South Carolina.....A. G. Gower, Greenville
Tennessee.....W. W. Fischer, Memphis
West Virginia.....R. W. Marshall, Wheeling
Wisconsin.....R. C. Brown, Oshkosh
Washington.....S. W. R. Dailey, Seattle

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James G. Lincoln, Boston; Walter F. Jahnke, New Orleans; A. E. Bradshaw, Indianapolis; Gordon Willis, St. Louis; V. H. Kriegshaber, Atlanta; J. C. Adams, Pittsburg; Charles Warner, Wilmington, Del.

Official Organ, ROCK PRODUCTS

The eleventh annual convention of the National Builders' Supply Association will be held at Chicago, February 23-24, 1910, during the Cement Show. Make your plans now to attend the greatest gathering of building material men ever held.

Straight Talk by Secretary Wardrop.

James W. Wardrop, secretary of the National Builders' Supply Association, can always be depended upon to give opinions and views interesting to the readers of ROCK PRODUCTS. In a recent interview with one of our representatives he said:

"The N. B. S. A. is distinctly a dealers' association. We do not class them as big, little, large, small, or otherwise. We say 'dealers' and include them all. We have no class legislation in our meetings and you know that it's the rank and file who elect officers and direct policies; also that our membership list will show the active membership to be composed of dealers, recognized as such in their several communities, etc. This makes them legitimate dealers.

"Of course there are dealers and there are dealers. Some small, of necessity; some large, by location and energy; some larger, by added business ability and progressiveness, but all dealers, nevertheless. I think it would be wrong to say the small dealer did not want to be large, or the large dealer larger. It is the right of every man to have ambition and he is a dead one who doesn't want to grow, but in the bringing of dealers into association or organization I think it wrong to classify them or to handicap them by class distinction. It should be common ground where the larger dealer reaches down to help the small dealer up and therefore the attitude of the smaller dealer should be one of aspiration, of growing up to large and larger.

"The generally conceded rule of the business provides for

"The manufacturer, who makes the goods and markets through natural channels;

"The distributor, who is generally a large dealer, with sufficient capital, aside from his own yards, to handle a certain territory for the manufacturer and thus save the latter the detailed work of soliciting, selling, risking credits and placing production. This condition is a growth following the early choice of the manufacturer and has worked to the advantage of both manufacturer and dealer everywhere. The advantage to the territorial dealer, however, is very marked, since his interests have been protected and advanced by one of his own class, and I have never heard of a dealer who is supplied by a territorial distributor, complain or suggest a change. Surely he would object if the distributor did not take good care of him. The fact is that the dealer's position under a distributor is infinitely better than under any other arrangement, and good common sense shows that the relationship of distributor and dealer is thoroughly mutual, else we would not have our twenty-five year record without a murmur.

"Lastly, there is the retailer or dealer—the man who comes next to the contractor or consumer—the public if you please. His place in the marketing of products is fixed in nearly every line, and we find his position generally conceded as a local necessity. This rule works no injury to anybody. Therefore the National Association declares:

"'We believe and maintain that the dealer is a legitimate and natural factor in the distribution of building materials, and as such is entitled to the generally established rules of trade.'

"The dealer has rights—large or small, big or little—and the size of orders has nothing to do with it. As a dealer he has a place and that place we strive to maintain for him. The opportunity for growth is his birthright and cannot be taken away.

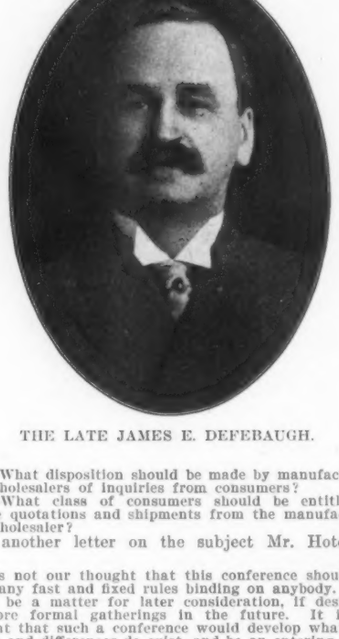
"Next—as to dues—that's easily solved, i. e., bring these within the reach of every man in the business. Let him pay according to his business—pro rata—and let the expense of dues grow with his business. Arbitrary dues is an argument against judgment but never against the principle presented. If judgment is wrong, change it, but don't change the principle!

"Of course there's no rule to compel any man to come in. That's a matter of choice. But when dealers organize let it be on the broadest possible plane—all inclusive and with the largest possible opportunity for every man, however small his beginning in the business."

For Conference of Various Interests.

George W. Hotchkiss, secretary of the Illinois Masons' Supply Association, has issued a letter on the subject of the relations between the manufacturer, the wholesaler and the retailer of building materials. In a recent communication to ROCK PRODUCTS he indicates that he has received enough replies to warrant him calling a meeting of the representatives of the various interests. This meeting will be held at the La Salle hotel, Chicago, December 15. The principal subjects to be considered are:

1.—The relation which should exist between the manufacturer, jobber and retailer.
2.—Who should be classed as a dealer?
3.—Is the dealer entitled to any protection, and if so, to what extent?



THE LATE JAMES E. DEFEBAUGH.

4.—What disposition should be made by manufacturers and wholesalers of inquiries from consumers?
5.—What class of consumers should be entitled to receive quotations and shipments from the manufacturer and wholesaler?

In another letter on the subject Mr. Hotchkiss says:

It is not our thought that this conference should lay down any fast and fixed rules binding on anybody. This would be a matter for later consideration, if desirable, by more formal gatherings in the future. It is our thought that such a conference would develop what difficulties and differences do exist, and be an entering wedge for eliminating them and establishing a better understanding among all parties, if such result is practicable.

For Mending Torn Bags.

Thousands of bags used by cement, lime and plaster men are thrown out annually because of being torn. The mending department of any large user of bags is by no means a small affair. It is a costly one as well and it is hard to get men to work in this department. Dirt and dust make bags hard to handle and the sewing on of a patch is a task. It is easy for stitches to tear out and a sewed bag does not last long. The solution of bag mending seems to be solved by the C. H. Little Co., of Detroit, Mich., large dealers in builders' supplies. They use in their bag department a cement which permanently seals a patch to the bag. They found this method so much of a saving that they decided to bring it to the attention of other users of bags. The cement is sold by them under the name of Little's Sac Paching Sement. They claim that there is a saving of 90% by the use of this material. This is an item to be considered by anyone who has to handle torn sacks.

OBITUARY.

Death called James Elliott Defebaugh on November 21, in the fifty-sixth year of his age. He was the elder brother of Edgar H. Defebaugh, and they have always been closely associated in all the affairs of their extensive publishing business. Since the middle of August, when it was first known that he was suffering from malignant cancer, the end has been considered certain and imminent. With patience and fortitude he kept the long vigil at Columbus hospital, in Chicago, the least complaining or disturbed amongst all those who knew and loved him.

Calmly and gently he crossed over, surrounded by loving wife, affectionate son, noble brother and faithful companions, without visible suffering. His earthly affairs were well ordered, and with the peace that passeth understanding confident that his faith was well founded, he entered the Great Beyond.

Mr. Defebaugh was born in Williamsburgh, Pa., of sturdy Dutch and Quaker parentage. He was educated in the common schools, and became a practical printer. Gifted with the talents of a ready and versatile writer, and with a broadly constructive brain, he achieved eminence and fortune as editor and founder of *The American Lumberman*, the first of class periodicals in America. His literary and publishing career commenced almost as soon as he arrived in Chicago, which was in 1877. His first newspaper venture of national importance was *The Timberman*, founded in 1886, in conjunction with E. H. Defebaugh, and the same circle of associates now composing the staff of the *Lumberman*, with but few changes. In 1899 the *Northwestern Lumberman* was absorbed, and the consolidated interest has since carried the title of *The American Lumberman*. The influence of his work and of his organization and publications has been and is the most powerful conservator of timber and timber products, as well as the reliable upbuilder of every branch of the great lumber industry from the tree to the retailer and the consumer. The great establishment which he founded and organized will live on to work out the problems of the future as it has done in the past, along the correct lines as now laid down or projected.

In fact, Mr. Defebaugh was stricken in the harness, so to speak, for his last active work, only a few days prior to going to the hospital, was devoted to his duties as chairman of the committee of the National Lumber Manufacturers' Association during the tariff revision at Washington. He was an indefatigable worker and possessed the faculty of throwing enthusiasm into all his undertakings.

He was a prominent member of many organizations, clubs and societies in Chicago, among them being the Union League Club, Hamilton Club, City Club, Marquette Club, the Press Club of Chicago, and Illinois Manufacturers' Association, besides all the lumber organizations, being one of the founders of the secret order of Hoo-Hoo, composed entirely of men engaged in the lumber business. He was an active Y. M. C. A. worker and a consistent member of the Presbyterian church.

Mr. Defebaugh enjoyed the respect, esteem and confidence of an extremely wide acquaintance throughout the entire United States, Canada and many foreign countries. He was a true Christian knight, a noble gentleman of God's own calling.

He is survived by his widow, Anna Carhart Defebaugh, and only son, Carl W. Defebaugh; his brother, Edgar H. Defebaugh, and three sisters, Mrs. A. E. Fulton, of Marysville, Kan., Mrs. Marian Ake, of Williamsburgh, Pa., and Mrs. Lizzie Graves, of Des Moines, Ia.

James Elliott Defebaugh was a Mason of the Royal Arch, a Knight Templar and a noble of the Mystic Shrine.

The Wawasset Stone Company of New York has been incorporated in New York City to manufacture brick, stone, lime and building material. Capital stock, $500,000. Incorporators: Clark Mellen, New York City; C. Mellen, Garden City; P. E. Whitten, Mt. Vernon; C. W. Robinson, New York City.

The Cook & Haigh Company has been incorporated at New York City to manufacture brick, stone, cement, etc., with capital stock of $50,000. Incorporators: I. N. Rudgers, Montclair; H. M. Cook, D. D. Haigh, Essex Falls.

The Ganor Lime and Cement Company, Danville, Ill., has been incorporated with a capital stock of $1,000 by Lucy Ganor, Cora Collard and Walter C. Lindley.

The Suspension Steel Concrete Co. has been incorporated for $3,500,000 at Wilmington, Del., by W. N. Akers, W. J. Maloney and E. B. Davis.

SCRIBO VISITS THE LEADING MEMPHIS DEALERS IN BUILDING MATERIALS.

While Mr. Wright's well-known modesty would lead him to disclaim being entitled to have been honored with the first call, it so happened this was the case, but candor requires the confession that I both knew Steve and where his den was located. The latter statement implies that I had difficulty in finding the other members of the guild, and such indeed was the fact, owing (and here is where I can throw out a compliment) to the rapid and extensive growth of the city since my last visit five years ago. The said Steve seemed so natural and so well taken care of that I was fain to imagine it was only five months since I had seen him. Though Mr. Wright would hardly go so far as to state the world was out of joint, he did intimate that Memphis dealers in building materials hardly appeared to be in haste to become millionaires, inasmuch as said materials were sold at prices which made the town the cheapest market in the country. [Note by Scribo.—Maybe this is one reason why it grows so fast.] Mr. Wright stated in answer to the inquiry where the lime handled in town came from that it was mostly shipped from Chattanooga. Being aware that this must be aiding the railroad magnates unduly I suggested to Steve that he should take his little hammer and go prospecting. He regarded me with a compassionate smile and replied he had already been afield. [I make no charge, however, for suggestions.]

My next foray was to the office of Harry Johnson, half way to the top of one of the new skyscrapers. Truthfulness compels me to state I went three times —possibly more—before I secured an interview. His lordship was either not in or in and busy. I contemplated sending in a card with the magic name Taft, when I nearly ran amuck with the genial H. P. When I surveyed his ample proportions I grasped the fact that since I saw him seven years ago he had not only been gaining sheckels, but flesh also. [Note by Scribo.—The man who makes money and gets fat has sense. The fellow who makes money and grows thin—well, he'd better quit.] While I ought to have discoursed on cement, sand and gravel, in conformity to my general instructions, I was so mighty glad to gaze on the face of an old friend and to make inquiries concerning others that I postponed talking shop until a subsequent visit. It is, however, too formidable a task to give a history of the operations of the Union Sand and Material Company in Memphis, or to furnish a list of the older and newer structures for which they have supplied "Red Ring" brand of cement and sand and gravel. All you have to do is to make a tour of the city, taking each point of the compass and see for yourselves!

I had seen at sundry times pictures of the Apollo of the Memphis dealers in B. M., consequently he had no occasion to introduce himself to me, and as my fame had preceded me we were soon at an understanding. The worst phase of the calling of a trade journal man is that the men you most want to interview are the hardest to get at. [Note by Scribo.—When business is good they are busy, and when business is bad they are even busier. See?] Now if any one wishes to go into the B. M. business, if said party can induce Mr. Fischer to give him the requisite training, all other things being equal, that is, if he has the brains, energy, money, tact and good judgment of said Mr. Fischer (to say nothing of his worthy brother, who acts as fill horse in the big establishment) zounds! there is no reason why said party shouldn't succeed.

Having already acquired many trades (so many they are getting badly mixed up, for I do not claim to be equal to Napoleon, who proposed to know everything), and still having the temerity to essay others, I lit my cigar and employed the public conveyance to take me to Cubbins Brick Company's plant. In Memphis, as in other cities, you can ride for a nickel, and in case of a brick factory I suppose a lot of fresh air is necessary, since they are always located in the outskirts of large places; maybe also to be near the clay and because land is cheaper. Then there is the demmed smoke which the smoke officer is supposed to absorb. Well I spent part of a day learning how to make brick, and what do you suppose Mr. Cubbins said when I spoke to him about my wages? He deliberately affirmed he'd bet money that I couldn't even toss bricks—if I pitched up a couple in the kiln they would fly in opposite directions. [Note.—Next time I go there I'm going to take that bet after a lot of practice in St. Louis.] It is astonishing with what modesty these ROCK PRODUCTS men are afflicted —I mean the subscribers—its like pulling teeth to get a photograph; they won't in some cases come out. Like Mr. Cubbins, they will stand for their "pictur" with a bunch of other fellows, and that's as far as many will go in furnishing posterity with their counterfeit presentment. Referring again to the brick trade, allow me to observe that a beginner should wait for zero weather. What folly for any one that doesn't have to going into a kiln from which the brick has just been removed. [My notes are indistinct right here.] Come to think of it, I will write a separate article on brick-making.

Having known the late J. A. Denie quite well I experienced no difficulty in recognizing the unusually marked resemblance to him on the part of his son. Then there is that genial man from Birmingham, who goes around hypnotizing orders for material from Memphians unless they save his time through calling at the office. [Note.—The thing I don't understand is how he manages to hypnotize these hard-headed contractors by telephone, with which instrument or process half of the business is transacted.] It is true Mr. Lovelace has a real melodious voice and it carries well. Back of said voice is a large personality—the fact is Mr. Lovelace should have sat on the bench—I mean been a judge. Anyway, he's a judge of materials and of folks—maybe the latter gift is the more important. Besides these good points Mr. Lovelace is a progressive, up-to-date business man and withal good-natured, but for his last characteristic he does not deserve much credit, being fat it's natural, since most stout individuals are so. The John A. Denie Sons' Company has a history. When a concern has been so long in business as to have a history, said historical feature becomes an asset, like a trade-mark for a pro-

E. S. WALTON, YOUNGSTOWN, O.

prietary article—it has a cash value. Having claimed that the concern is a progressive one, in spite of a tendency to conservatism, which is apparent in all old-time establishments, I venture the prediction they will take up, ere long, with the vigorous introduction of hydrated lime. Besides being a good business proposition the strenuousness of the task will tend to prevent Mr. Lovelace from becoming too corpulent. [Note.—I failed to discover why so good a catch as Mr. L. still remains unchained. Maybe, however, some fair Memphian will beat the Birmingham ladies at hypnotism—we shall see.]

Last but not least there is the Cubbins Lime and Cement Company, which is not only entitled to a share of the business in B. M., but gets it. The observant visitor is likely to note that all these Memphis B. M. folk are wiser in their day and generation than the olden time cotton factors, who seem to have wished to encourage the teaming business, and all parties identified with it, including the faithful mule and the colored gentleman who took charge of the team. The B. M. men on the contrary got as near the railroads as they could, and of late years the cotten men have done the same. Among the trade Edwin Fraser, who manages the business, is known as a quiet sort of chap, but Ed gets there just the same. This comes from experience, and Ed has got enough and to spare of that (what is it, a commodity or a faculty—my unabridged is not at hand) well, mighty desirable familiarity with building materials, and after all 's said you simply have to learn your trade, and in these days of experts and specialists, unless you do, you will soon go way back and sit down, or you may go to Alaska and try your luck; there's plenty of room in that country.

Just now many Memphians are quite busy chewing the rag, for they feel mad over the hold-up of the Union depot project. Not even the completion of one of the finest public buildings in the South—the new Shelby County Courthouse—and the frequent announcements of important new structures will compensate them for this disappointment. Instead, however, of sitting down and waiting for something to turn up they are bringing pressure to bear on the roads that are responsible for the hitch that has stopped, temporarily, the progress of this important and long contemplated public improvement.

Suggestion to Members of the National Builders' Supply Association

BY E. S. WALTON.

I am a great deal like Brother Bradshaw in reference to writing this letter. I have never undertaken a task of this kind before. Brother Bradshaw has told how important it is to belong to and attend conventions, and I am going to scold because you attend the conventions and do not attend the sessions. There are a number of members that would have to be chloroformed to get them into the meetings.

But, seriously, it is very embarrassing to the officers to work from one to two hours to get enough members to attend to make a quorum. Every member who misses just one of these sessions is missing information that he needs in his business. Some of them do not even know the officers of the association.

Every building supply dealer in the United States should join the National Builders' Supply Association and then go to the conventions and attend every session promptly. This would help the officers and help the members as well. If you do this, you will find you are well repaid for the expense you have been put to.

RETAILERS.

Trade Conditions Found to be Materially Improved in a Number of Cities.

Hartford City, as well as Union City, Ind., has done but very little in building lines this year. Dealers in builders' supplies have not felt the lack of material sold in these cities, for the reason that the farmer came to their relief by using quantities of cement and lime unknown in former years. Consequently, the dealers in these cities have done a satisfactory business this year, and feel that there are bright prospects in sight. The farmer in the districts surrounding these two cities has never been in better condition.

John A. Newbauer & Sons.

There is one firm in Hartford City handling builders' supplies, the oldest in the county having been established twenty-three years ago, that does as large a business as firms in this line do in cities having five times the population of this town. This firm is John A. Newbauer & Sons, with office and yard at 112 East Washington Street, near the tracks of the Panhandle road, and another yard, where they handle coal, at 1015 West Franklin street, with switch track from the Panhandle railroad running into the yard. They possess splendid facilities for handling the material in their yards, which enable them to make prompt deliveries by team to any part of the city. Their warehouses have a storage capacity of one thousand barrels of cement, lime and plaster.

They operate a gravel pit a mile from the city, using a steam shovel running on a cable, which takes the gravel out from under twenty-six feet of water. The output is about two hundred yards a day.

They handle Medusa, Wabash and Peninsular cements; lime in barrels and hydrate from the Ohio and Western Lime Company; plaster from the Grand Rapids Plaster Company, and sewer pipe and fittings from Louis McNutt. George H. and Robert L. Newbauer, the sons, who are actively managing the business, say that the demand for cement in the farm districts has been increasing rapidly every year, till this year the demand has reached its maximum, having sold fully two-thirds of all cement handled to farmers. "Had it not been for the farmer," they said, "we would have been up against it. Our business has been good, and we look for a heavy increase in it steadily from now on."

The Mercer Lumber Company.

The Mercer Lumber Company, located at West Washington street and the tracks of the Panhandle road, has been in existence for thirty-three years. Four years ago it put in and handled a line of builders' supplies and coal.

It handles Castalia and Atlas Portland cements, lime in bulk and hydrate from the Ohio and Western

Lime Company, plaster from the Acme Cement Plaster Company and flue lining.

They make prompt deliveries to all parts of the city. Their warehouse storage capacity is four hundred barrels of the material they handle. Farmers are among their best customers. Its business this year has been fair, and prospects are bright for the future. W. H. Campbell is treasurer and manager of the company.

George T. Fulton.

George T. Fulton, whose factory is in the southern part of the city, is manufacturing a concrete block, which has a large sale in farm districts and in the city. It is said to be one of the most perfect cement blocks made by those who have used it for foundations and is well thought of.

UNION CITY, IND.

S. J. Fisher.

S. J. Fisher established his coal yard in 1878 at South Columbia street and the Pennsylvania and Big Four depot, occupying the same office and yard today that he did when he started his business thirty-one years ago. Ten years ago he put in a full line of builders' supplies.

He has two warehouses whose combined storage capacity is six hundred barrels of cement, lime and plaster. He handles Alpha Portland cement, the product of the Grand Rapids Plaster Company; lime in bulk and hydrate from the Ohio and Western Lime Company and the N. C. Stone & Lime Company, of Marion, O.; sewer pipe and fittings, flue lining, firebrick and fireclay of the Robinson Clay Product and the Evans Clay Manufacturing Companies.

Mr. Fisher possesses splendid shipping facilities, and his arrangements in his yard for handling all this material quickly make it an easy matter for him to promptly deliver it to all parts of the city.

His trade in cement in farm districts has been rapidly increasing every year. Business has been satisfactory this year, and he looks forward confidently to times which prevailed before the "money scare" of 1907.

The Mead Grain Company.

The Mead Grain Company, Inc., W. W. McClure and Addison Steele, proprietors, last year commenced handling cement, gravel and sand. Their warehouse capacity is six hundred barrels of cement. They handle Alhpa, Alma and Lehigh Portland cements. Farmers are buying much cement of them this year. Business has been more than good, and they believe a bright future is ahead of them.

Henry G. Rosenbush.

Henry G. Rosenbush has his yard and office located at State Line Street and the Big Four depot. He handles coal and builders' supplies. The storage capacity of his warehouse is five hundred barrels of lime, cement and plaster. He carries Lehigh Portland cement; lime in bulk and hydrate from the Ohio and Western Lime Company, the product of the Grand Rapids Plaster Company, and sewer pipe and fittings, drain tile, etc., from the Robinson Clay Product Company, and handles also gravel and sand. He had no complaints to make of the business done this year, and hoped that business would be better next year.

The Union City Cement, Stone & Coal Company.

The Union City Cement, Stone and Coal Company, J. J. Haselmire, proprietor, has its yard and office north of the Big Four freight house. He manufactures cement blocks, which are used extensively in foundations in farm districts and in the city. He handles Peninsular and Vulcanite Portland cements. He established his business six years ago. He keeps in store about three hundred barrels of cement.

MARION, IND.

Marion, one of the Indiana cities in the oil belt, has just recovered from the depression following the boom oil period and the money panic of two years ago. Building operations have been active here this summer. The completion of one of the largest factory buildings for manufacturing automobile motors and another immense building which will be used for furnishing postal cards and envelopes to the government at Washington mark the changed industrial conditions the city is entering upon.

The crop of corn, wheat and oats in this county has been an unusually big one. The farmer is using more cement and lime than he has any year in the past, and dealers in builders' supplies have had a good business this year, and look forward to prospects which are unusually bright.

Southall & Company.

One of the oldest firms in Marion, Ind., handling a full line of builders' supplies is Southall & Company, whose yard has been in existence twenty-one years, and is located at 817 South McClure street.

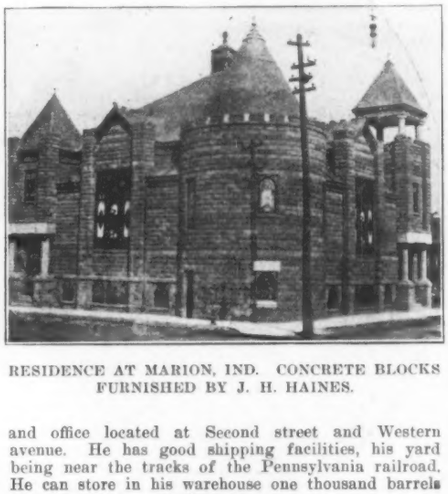
Their shipping facilities are all that can be wished for, and the arrangements for handling this material in the yard are excellent, ensuring prompt delivery by teams to all parts of the city. A switch track from the "Clover Leaf" road runs into and close by the doors of the warehouse, which has a storage capacity of two thousand barrels of cement, lime and plaster.

They handle Medusa and Castalia Portland cements; plaster of the United States Gypsum and American Gypsum Companies; lime in bulk they handle in carload lots direct, without passing through the yard, and lime in barrels and hydrate from the Woodville Lime & Cement Company and the Kelly Island Lime & Transport Company; sewer pipe and fittings and a full line of clay products from the Robinson Clay Products Company and the Robinson & Graves Sewer Pipe Company. They also handle white sand very extensively.

Mr. Southall said that farmers had been using cement very extensively for foundations for barns, barn floors, walks, watering troughs on their farms, etc., in the past three years. The demand for cement in the farm districts has been much larger this than any previous year. He reported business satisfactory, with exceedingly bright prospects ahead.

J. H. Haines.

J. H. Haines, who has handled a full line of builders' supplies seven years in Marion, Ind., has his yard



RESIDENCE AT MARION, IND. CONCRETE BLOCKS FURNISHED BY J. H. HAINES.

and office located at Second street and Western avenue. He has good shipping facilities, his yard being near the tracks of the Pennsylvania railroad. He can store in his warehouse one thousand barrels of cement, lime and plaster.

He handles Atlas Portland cement; plaster of the American Gypsum Company; lime, bulk and hydrate from the Kelly Island Lime & Transport Company and the National Stone and Lime Company; sewer pipe and fittings and a full line of clay products from the Robinson Clay Products Company. He manufactures cement blocks, cement bricks and shingles, for which he has a large demand in the farm districts. He says this year his sales of cement are equally divided in city and on farm. Business this year, he has nothing to complain of, and believes there are bright prospects ahead.

Contractors' Supply Company.

Contractors' Supply Company, A. C. Wright, manager, with office and yard located at the corner of Fourteenth and McClure streets, at the Panhandle depot, has been in business for four years, and is one of the prominent concerns here handling coal and a full line of builders' supplies.

Its shipping facilities are good, a switch track running from the Panhandle road into and close by its warehouse in the yard. The storage capacity of this warehouse is fifteen hundred barrels of cement, lime and plaster, which is unloaded from cars direct into warehouse.

It handles Alpha Portland cement; plaster of the Grand Rapids Plaster Company; lime in barrels and hydrate from the Kelly Island Lime and Transport Company; sewer pipe and fittings from the Robinson Clay Products Company.

It operates a sand and gravel pit, which is quite near its yard, and which is used extensively for concrete, plastering and mason work. Half of the cement and plaster sold this year went to the farm districts surrounding Marion. Mr. Wright reports business satisfactory, and sees indications all pointing to an activity in building lines greater than before the slump of 1907.

Holderfield Supply Company.

The Holderfield Supply Company established its business eight years ago in Marion, Ind., at East Jackson street and the Chicago, Cincinnati and Louisville railway crossing. A switch track from this road runs into its yard, and, to use the phrase employed by W. G. Morrison, secretary and manager of the company, "jamb up" to the warehouse, which has a storage capacity of three thousand barrels of cement, lime and plaster.

Its railroad and yard facilities for receiving, handling and delivering its various building materials are of the best. Like all the other dealers, it delivers material to jobs by team to all parts of the city.

It handles Lehigh and Edison Portland cements, lime in bulk, and hydrate from the Kelly Inland Lime and Transport Company and the National Lime and Stone Company, plaster from the Grand Rapids Plaster and Acme Cement Plaster Companies, sewer pipe, fireclay, firebrick and drain tile from the Robinson Clay Products Company, and white sand.

It also operates a stone crushing plant in connection with its business, the capacity of which is forty yards of stone a day. Mr. Morrison said: "Our trade in cement with farmers is rapidly increasing, and soon our sales of cement will be equally divided between city and farming districts. Business has been only fair this year, but this fall and next spring it will be more than good."

J. G. Wolf & Sons.

J. G. Wolf & Sons operate two yards. One is located at First and Washington streets, where their central office is located, and the other at Thirtieth and Bath streets, where they handle cement and manufacture cement blocks, which is their principal business in builders' supplies. They handle Wabash Portland cement, most of which they use in the manufacture of their block, selling at retail but very little of it. They handle coal at both yards. The yard used for manufacturing and handling cement blocks occupies an area of ground covering an entire block.

They state that business has been good this year, and is now picking up fast, and that prospects are bright.

MUNCIE, IND.

Marked activity in building operations has been a feature this year in Muncie. Large and handsome business blocks faced with cut stone, public school buildings and pretentious residences are nearing completion this fall, while many public improvements this year have furnished work to hundreds of workmen.

Dealers here handling builders' supplies have had a good year so far, and feel happy as they feel business conditions gliding into the prosperous channels existing before the slump of 1907.

The bumper crops of corn, oats and wheat in the surrounding farming districts which the farmer has harvested this fall will give the wave of prosperity which is commencing to be felt an impetus which nothing can check.

G. B. Hamilton.

G. B. Hamilton, located at the north end of High street, has been in the builders' supply business in Muncie, Ind., over twenty-three years. He has a switch track running alongside his yard and warehouse which gives him access to the L. E. & W., C., C. & L., Big Four, C. & E. I. and the Pennsylvania railways. In consequence, his yard possesses superior facilities for receiving, shipping and handling its material quickly and economically, making deliveries by teams to any part of the city promptly.

The warehouse has a storage capacity of one thousand barrels of lime, cement and plaster. He handles Medusa and Tiger Portland cements; lime in bulk and hydrate from the Kelly Island Lime and Transport Company; plaster from the American Cement Plaster Company; sewer pipe from the American Sewer Pipe Company, and a full line of clay goods. He handles white sand from the Garden City Sand Company, of Chicago. He is the agent here for the Medusa and Tiger Portland cements, for the lime of the Ohio and Western Lime Company and Sackett's Plaster Board.

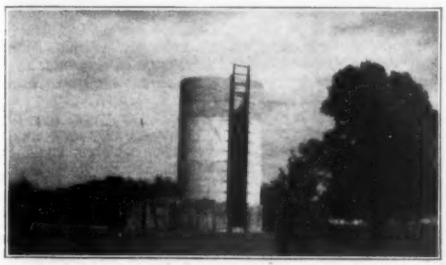
His sales of cement to the farmer are increasing rapidly every year. Only lately he sold one of the wealthy farmers near Muncie cement for building his silo. It took forty barrels. This farmer contemplates putting in cement walks, floors, etc.

M. S. Hamilton, manager of this business, said: "The use of cement in the farm districts has become general; town bridges in the townships around here, floor and crown of reinforced concrete across little ditches are now constructed in which cement is used as never before. Where board floors were used formerly, now cement floors are taking their place. Business," he continued, "has been good this year, and I expect an extraordinary trade this fall."

The Muncie Builders' Supply Company.

The Muncie Builders' Supply Company, located at Second and Mulberry streets, has been in existence here twelve years. Will M. Patterson, the proprietor, was born and raised here. He has another yard at Madison and Willard streets. They are near the tracks of the Big Four and C., C. & L. railways. The yards are well arranged and possess good facilities for handling promptly the builders' supplies stored in them.

The warehouse storage capacity is six thousand barrels of cement, lime and plaster. Wabash Portland cement is handled in these yards; lime in bulk and hydrate of the A. & C. Stone & Lime Company; plaster of the American Gypsum Company; sewer pipe and fittings from Robinson, Graves & Company. One-half of the cement he sells the farmers take.



CONCRETE SILO NEAR MUNCIE, IND. CEMENT FURNISHED BY G. B. HAMILTON.

Mr. Patterson said: "If it had not been for the farmer, the cement mills would not have been running and business would not have recovered as quickly as it has done. The country is on the upturn."

The Greer, Wilkinson Lumber Company.

The Greer, Wilkinson Lumber Company's yard in Muncie has two switch tracks, one from the L. E. & W. railway and the other from the Big Four, running into its yard. It is conveniently located for handling the large and full line of builders' supplies it carries. Its warehouse storage capacity is fifteen hundred barrels of cement, lime and plaster.

Universal, Edison and Lehigh Portland cements are handled here; hydrate from the Ohio & Western Lime Company, and plaster. This yard is one of the chain of thirty-eight yards in Indiana of the G. W. L. Company.

The J. M. Kaley Company.

The J. M. Kaley Company deals extensively in building material of all kinds. Its office and yard are located at 1125 West Second Street, and the Big Four and the L. E. & W. railroads, with a switch track running into the yard from the Big Four railroad. The location of this yard is claimed by many to possess the best facilities for handling builders' supplies in this city.

The company carries in its warehouse, the storage capacity of which is twenty-five hundred barrels, Speed's Portland cement, lime from the Kelly Island Lime & Transport Company in barrels and bulk, stored in an air-tight lime house, with a storage capacity of two car loads; plaster, the product of Grand Rapids, Mich.; a complete line of sewer pipe and fittings from the American Sewer Pipe Company. The Kaley Company claims to be the biggest dealer in sewer pipe in the state. Ordinary bank sand and extra white finishing sand are dealt in extensively. The fine white sand known as Ocean Beach Sand has a big sale, being used extensively for children's playgrounds. The company started in business about two years ago, has found business good this year, and believes that a better business will develop this fall and next spring.

The Muncie Stone & Lime Company.

The Muncie Stone & Lime Company, of Muncie, has last spring erected a No. 5 stone crushing plant equipped with electric motors. Two 35-h. p. motors and one 20-h. p. motor and eight small motors furnishing power to pumps and machine shop. "This is the first electric equipment installed in any stone crushing mill in the state of Indiana," said E. T. Milligan, its secretary and treasurer; "it works as fine as silk."

Cambridge City.

Little Cambridge City, Ind., which has not many over seventeen hundred inhabitants, is prosperous, and every one in it is doing a rushing business. The reason for this is that Wayne County, in which it is located, is among the richest agricultural sections of the state, and the crop of corn, wheat and oats has again this year been an exceptionally good one. There is only one dealer handling builders' supplies in this city, doing a rattling business, especially in cement and lime, which practically are all taken by farmers. You can hunt in any nook and corner of Cambridge City, and you will find nothing but prosperity there, and the "lone" dealer says there will be more of it coming—and in bunches at that.

LAWRENCEBURG AND AURORA, IND.

Building operations in both Lawrenceburg and Aurora have been confined as usual for the past few years mostly to residences. Dealers in builders' supplies here have not done a very brisk business this year, but say that it is picking up fast. Farmers are in splendid shape financially and are using on their farms much more cement than in any year in the past.

E. Barrott & Son.

E. Barrott & Son are among the leading merchants in Lawrenceburg. Their hardware store at 311 Walnut street is well patronized by the people in the town and also the farmers. They have been in business many years. The firm handles Speed, Lehigh and Bedford cements, and lime in bulk and hydrate from Huntington, Ind., which is shipped to them on the Big Four and the B. & O. railroads, the tracks being only a short distance from their warehouse, where the cement, plaster and lime, and a full line of sewer pipe are stored. The storage capacity of this warehouse is about a carload of cement, plaster and lime, and they usually keep that quantity on hand to supply the needs of their trade. Mr. Barrott, speaking of the conditions in the builders' supply business, said: "I have found it dull this year, and had it not been for the farmers in this county, who are using more cement every year for improvements in the shape of cement floors in barns, hog pens and cement walks, I would not have done as much business as last year. Everybody around here is in pretty good shape financially."

Harris Fitch.

Harris Fitch is one of the oldest residents in Lawrenceburg, quiet, reserved, and with pleasant, engaging manners which have made him popular throughout the county. He started in the hardware business thirty-one years ago and carries a most complete stock. Mr. Fitch's store is located at the corner of High and Short streets. Mr. Fitch began handling cement, lime, plaster and sewer pipe twenty years ago, and has built up a large business in this line. The storage capacity of his warehouse is 800 barrels of cement, lime and plaster. He has good facilities for handling this material, the warehouse being located near the tracks of the Big Four and B. & O. roads. His brands are Lehigh Portland cement, lime in barrels from Springfield, Ohio, the product of the Acme Plaster Co., sewer pipe from Brazil, Ind. and Wm. E. Dee of Chicago. Mr. Fitch said: "The farmers in the country near Lawrenceburg are using a great deal of cement, and more and more of it every year. Business is dull but prospects are good."

H. P. Spaeth & Co.

It is a pleasure to watch H. P. Spaeth of Aurora wait on customers in his hardware store at 74 Second street. His pleasing manner and quick attention to their needs enable him to wait on a half a dozen patrons while the ordinary young clerk is looking after one. It is still a greater pleasure to talk with this whole-souled, good natured man. Always courteous, but strictly business, he gets at the "meat" of what is wanted in a second. "So ROCK PRODUCTS wants to know about my business?" he said. "Well, it has come to the wrong man. I have retired, am out of business, on the shelf. I am just helping the boys out a little. F. K. Spaeth, that is my son, and Thomas Powell, who was my clerk for thirty-two years, run the business now, but the boys insisted that the old man's name should not be dropped and the firm name continues H. P. Spaeth & Co. I started this business forty-one years ago, and for twenty years have dealt in cement and lime. A drayload would last in those days from three to four months. Now we sell about six carloads in the same time. In those days I sold German imported cement at $3.50 a barrel, because there was no American cement then. People have forgotten that I put in the grounds of my home here the first cement walk in Aurora. I have made a success of this business and the boys who are now running it are made of the same stuff as the old man, when he was young. They handle Lehigh cement by the carload, Speed's Utica cement and Louisville lime and drain tile. The warehouse where the cement is stored holds several carloads of it, and they have good facilities for handling it. The trade in cement is now evenly divided between the city and the farming districts. The farmer is using large quantities now, but will use more and more each year. The boys have found business a little dull this year, but they believe, as I do, that there are mighty good times close ahead of us."

J. C. Wright & Sons.

J. C. Wright & Sons' lumber and building material yard is located on Third and Mechanic streets, Aurora, with office on the corner opposite. This concern has been in business here many years. A switch track from the Big Four railroad runs into the yard close to the warehouse where the Lehigh Portland cement, plaster and lime are unloaded from the cars into the warehouse which holds about 400 barrels. They also handle hydrated lime from the National Lime & Stone Co. and lime in bulk which is stored in a lime-house built on the principle of a refrigerator, the products of the American and Acme Plaster companies, and a dozen different kinds of roofing material. Their facilities for handling these supplies are excellent. J. C. Wright, who has been a large building contractor here for thirty-six years, said in speaking of conditions now and in the past: "I have held for several years that the use of cement was only in its infancy and think the same today. The farmer who used but little of it a few years ago is using it now in great quantities, and still its use is handicapped, as many farmers do not know how to mix it. They are, however, now getting 'on to the mixing' and the consequence is that, gaining this knowledge, there has been a great increase in sales of cement to them. We have this year sold as much cement in the farming districts near Aurora as we have sold in town. I sold a farmer the other day fifty barrels for a school house in the township in which he is a trustee. Business is fair and is picking up fast."

SHELBYVILLE, IND.

The people of Shelbyville believe that the depression which swept over the country two years ago is a thing of the past and are acting upon this belief. There has been considerable work done in the city in putting up private buildings and making public improvements. Dealers are making no complaints about business and feel more than hopeful of the future. Farmers here have never been in better shape and are using large quantities of cement sprucing up their farms laying cement walks, barn floors and making other improvements.

G. W. Hilligoss & Son.

G. W. Hilligoss & Son, with office and yard at 137 and 139 East Washington street, are extensive dealers in coal and building materials, and also operate a dray line. G. W. Hilligoss, who started a teaming and transfer company with one dray over fifteen years ago, after the first year ordered a carload of coal as an experiment. He sold it quickly, and soon coal became the principal part of the firm's business. Six years ago building materials were added and these have grown into a most extensive business. The firm has most excellent facilities for handling these supplies. A switch track from the Big Four railroad runs alongside their yard and warehouse, which has a storage capacity of over 600 barrels of cement

J. A. NEWBAUER & SONS, HARTFORD CITY, IND.

and plaster. Deliveries are made with their own teams to jobs in all parts of the city. They handle Lehigh Portland cement, the Tiger brand of hydrated lime, and plaster from the Grand Rapids Plaster Co. They are selling larger quantities of cement to the farmer each year, but the larger part of their trade is in the city. L. A. Hilligoss, manager of the firm, said that they had no reason to complain of business this year.

S. P. Stroup Lumber Co.

Thirty-five years ago the S. P. Stroup Lumber Co. was established in Waldron, seven miles from Shelby-

ville, and ten years ago Mr. Stroup established his lumber company in this latter town, with office and yard at 139 East Broadway near the Big Four railway tracks. The yards in both places possess excellent facilities for handling lumber and cement, lime and plaster. The company carries United States and Atlas Portland cements, lime in lump and hydrate from the Marblehead Lime Co. and plaster from the Acme Plaster Co. Its warehouses are large in both yards, where at least two to four carloads of the materials are continually stored to supply the trade. S. P. Stroup makes his headquarters in Shelbyville, and in talking of the conditions existing in the cement trade said: "I have found a very marked increase in the demand for cement in the farming districts during the past three years, and it is increasing rapidly every year. My sales of cement are pretty evenly divided between city and country, but I expect that in a year or two the farmer will be the heavier buyer. In regard to business this year I must say it was only fair in the early part of the season, but has improved greatly of late."

McLaren Lumber Co.

The McLaren Lumber Co. has been doing a big business for the past ten years. It was established in 1899, with office and yard at 139 East Hendricks street. Besides lumber, which is its principal line, it carries cement, lime and plaster. It has good facilities for handling these materials having its yard near the tracks of the Panhandle railroad. It carries Superior and Atlas Portland cements, hydrated lime from Huntington, Ind., and plaster from the Grand Rapids Plaster Co. It is a peculiar fact that this company sells much more cement to the farmers than in the city and its city trade in cement is by no means small. Its warehouse has continually 500 barrels of these materials in store.

J. O. Parish Lumber Co.

One of the oldest and largest lumber firms in Shelbyville is the J. O. Parish Lumber Co., which has been in existence for over thirty-one years. Its office and yard are located at 145 and 147 East Broadway near the tracks of the Big Four railway. It carries cement, lime and plaster and has excellent facilities for handling these materials. The brand of cement carried is the Castalia, bulk lime from Woodville, and hydrate from Cleveland, Ohio, and plaster from the Acme Plaster Co. It has constantly on hand a carload of each of these materials to meet the daily demand. Lime in bulk is stored in a warehouse holding a carload, which is constructed specially to keep the lime from slaking. Trade in the farming districts near Shelbyville is large and increasing fast. Allan P. Green, the company's manager, believes there are bright prospects ahead.

MADISON, IND.

There has not been much building in Madison, Ind., this year, and consequently the dealers in builders' supplies have not had as good a business as they expected, but they have more than made up for this in the increased trade in cement in the farm districts.

Hargan & Co.

H. W. Hargan has been in business a great many years here and has one of the largest hardware stores in the town. He spoke of the changes that occurred since the old river days, when merchants in Indianapolis and Cincinnati came here to lay in a new stock of goods. "They don't do that now," he said with a smile. "There is no use in talking of the past. When I first handled cement it was the imported German variety which sold at $3.50 a barrel. I have not seen any of that for many years. I now sell Lehigh and Atlas Portland cements, as good if not better than the imported was in those early days. I also handle Speed's Utica lime from Louisville. This I get by boat in barrels. I keep in store at my warehouse here always from one to two carloads of cement. The demand is growing greater every year, as the farmer uses lots of it now for floors in his cattle barns, hog pens and chicken houses, and many farmers are commencing to lay cement walks in their grounds. There is little building going on here and most of the cement I sell to farmers in the neighboring farming districts. It seems to me that the general use of cement on farms will make the mills hustle to supply the demand. Business is in good shape here and everything looks to me as though good times were again in sight."

Mr. Hargan does business under the firm name of Hargan & Co. and has a handsome and well stocked store on Main street, corner of West.

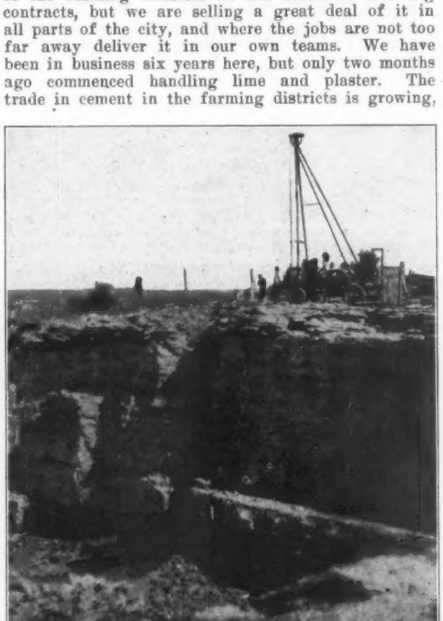
Madison Planing & Lumber Co.

F. Cochran, vice president and manager of the Madison Planing & Lumber Co., was busily directing the affairs of the concern, but had time to say: "This concern has been doing business for seven years and has shown good results. We handle lime and plaster and sell a good deal of it. The lime we get is the hydrate from the National Lime & Stone Co., of Woodville, Ohio, and the plaster is the product of the United States Gypsum Plaster Co. We keep a sufficient quantity of both lime and plaster on hand always to supply the demand and deliver it to the jobs in any part of the city."

The office of the company is at 129 West street, and its yard and mill at 104-106-108-110 West street. The business of the concern this year has been satisfactory and the outlook Mr. Cochran considers bright.

Schofield Contract Co.

William Schofield is head and front of the Schofield Contract Co., the largest concrete contractors in the city and doing a big business in heating, drainage and plumbing at 223 West Main street. The company handles Lehigh cement, lime in bulk from Cary, Ohio, and hydrated lime from the National Lime & Stone Company (this latter all in paper bags), plaster from the Michigan Plaster Co. and sewer pipe from the Evans Clay Manufacturing Co., of Urichsville, Ohio. Mr. Schofield said, "Much of the building material we use ourselves in filling contracts, but we are selling a great deal of it in all parts of the city, and where the jobs are not too far away deliver it in our own teams. We have been in business six years here, but only two months ago commenced handling lime and plaster. The trade in cement in the farming districts is growing,



CYCLONE DRILLER AT WORK IN A WISCONSIN QUARRY.

and the dealer here who pays attention to it need have no fear of dull times."

W. H. Miller.

It is easy to understand why W. H. Miller has become one of the successful and prominent men in this city. He is genial, quick to grasp business propositions, and tends strictly to business. His yard where he sells lumber, sash and doors, cement, lime and drain tile is at 821 to 827 West Main street. Recognizing the necessity of handling cement economically and quickly he has also a warehouse on the Pennsylvania railway with a switch track running close enough to it to throw the bags of cement from the cars into the warehouse without the use of wagons or trucks. He handles the United States cement and carries in store about 400 barrels. He stores his bulk lime in an insulated warehouse which holds two carloads, which is shipped from Mitchell, Ind., and the hydrate from Woodville, Ohio. Roofing material from the Barrett Manufacturing Co. he receives in carloads and sells entirely to farmers. He said: "Most of the cement I sell is taken now by farmers as they are using more and more every year. The sale of bulk lime is confined to the limits of the city."

Mr. Miller is the agent for Sackett's Plaster Board in Madison. He says his business has been good this year.

GIBSONBURG, O.

Large limestone quarries and lime kilns employing many men the year around make Gibsonburg one of the live towns in this part of the state. Activity in building has been greater in the neighboring farm districts than in the town itself, and has kept dealers in builders' supplies prosperous and happy this year.

Buckeye Coal Co.

On Madison street West and the railroad tracks the Buckeye Coal Co. has its yard, established four years ago. The members of the company are F. E. Voorhis, J. A. Henlein and D. T. Henlein. They are doing a good business in coal and builders' supplies, handling Omega Portland cement, tile, brick and sand. They keep in store in their warehouse 150 barrels of cement to supply the daily demands from people in town and the farming districts around Gibsonburg. They report business in building material good this year, with fine prospects ahead.

Gibsonburg Coal & Ice Co.

A. H. Miller, proprietor of the Gibsonburg Coal & Ice Co., located on Madison street west and the railroad tracks, has been in business since 1896. He handles Lehigh and Whitehall Portland cements, hydrate from the Ohio & Western Lime Co. and drain tile. He reports that his sales of cement this year have been double what they were last year, due to the fact that farmers in Sandusky county are making greater improvements on farms and roads than ever before. Business is good and improving rapidly.

PORT CLINTON, O.

Building operations in Port Clinton this year have been fair and somewhat larger than last year, fully coming up to expectations. Farmers in the neighboring agricultural districts have made more improvements than in many previous years. The only concern handling builders' supplies has done a big business and expects even better conditions next year.

Port Clinton Lumber & Coal Co.

One of the live concerns in the northern section of the state of Ohio doing a large volume of business, is the Port Clinton Lumber & Coal Co., established in 1895. Its yard is located on the Lake Shore & Michigan Southern R. R. Two switch tracks from this road, one running through the center of the yard, and the other alongside of its entire length, provide for the best of shipping facilities for its lumber, coal and builders' supplies. The warehouses have a storage capacity of 1,500 barrels of cement and plaster. Castalia and Universal Portland cements, lime, mostly hydrate, from the Woodville Lime & Cement Co., the American Gypsum Co.'s plaster, common brick, sand, glazed tile, hollow building blocks and concrete blocks which the company manufactures, its output averaging 30,000 blocks a year, are among the supplies kept in this yard. Otto Dishinger, manager of the company, said: "Farm districts near here have swelled the cement trade greatly the last six months and all indications point to an extraordinarily active year for 1910."

Successful Blast for Large Tonnage.

Deep drilling in quarry operations is without doubt a success. This is one of the most important problems the quarrymen has had to contend with. With the equipment now manufactured deep holes may be drilled and shot economically.

The largest blast ever fired in Wisconsin was touched off November 18 at the quarry of the Mayville White Lime Works. Six holes, five inches in diameter, thirty-eight feet deep and sixteen feet apart were first sunk by the Cyclone driller No. 10, operated by compressed air, for which the engine is adapted. The tools used were a regular string of cable tools, such as are used for drilling water wells, consisting of a 5" bit, 18' stem, 3½" in diameter, and rope socket. These tools, attached to the drilling cable, were operated at from 50 to 60 strokes per minute by the spudding device on the drill proper, and the holes drilled at the rate of from three to four feet per hour.

The cuttings were removed from the holes by the use of a flat-bottomed sand pump operated by an auxiliary line on the machine, attached to a separate drum operated at high speed.

The feature which adapts this machine to this class of work, is its lightness, as it weighs only about 4,200 pounds, and hence is readily moved from hole to hole by the two men operating it. Mounted on wheels and moved without lowering the derrick very little time is lost between holes, and the drilling is practically continuous.

The holes at the Mayville quarry were loaded with Dynalite, an explosive which has been creating much favorable comment among quarrymen. This work was done under the supervision of T. N. Allyn, chief demonstrator of the American Dynalite Co., of Amherst, Ohio, and fired by him. It is estimated that between 5,000 and 6,000 tons of crushed rock were thrown out by this one blast.

SAND AND GRAVEL

STANDARD TESTING SAND.

Great Plant Where Ottawa Standard Sand is Prepared for the Cement Laboratories—Large Commercial Output.

Many times attention has been called to the importance of the aggregate specifications in all classes of concrete, mortar and plaster work. Study of the subject of sand is no longer considered a trivial part of the technique of rock products, although it was almost entirely neglected up to about ten years ago.

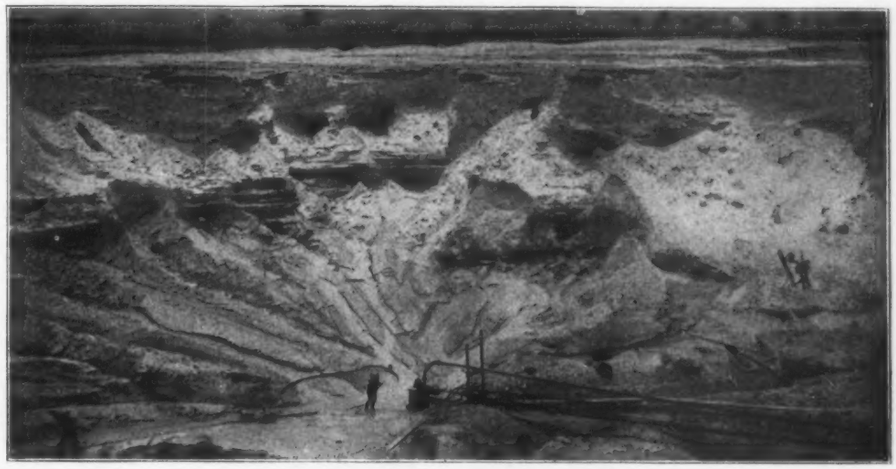
One of the most unique establishments in the sand business in the United States is that of the Ottawa Silica Co., located at Ottawa, Ill., a short distance west of Chicago. This company was organized in March, 1900, with the present officers: E. B. Thornton, president; C. B. Herring, manager, and J. B. Herring, secretary and treasurer. The company operates two extensive mills which have been developed to meet the commercial requirements of the sand business, having a total capacity of 1,100 tons per day, the product consisting of glass sand, roofing sand, plaster sand, white mortar, sand for sawing limestone and marble, and for many other minor purposes to which a perfectly white and pure silica sand is adapted.

This company successfully conducts the most important feature of the sand industry in this country in its laboratory for the production of "standard sand" 20-30, which is used in the testing laboratories of all cement manufacturing plants, under the recommendation of the American Society of Civil Engineers and the American Society for Testing Materials, as well as the American Association of Portland Cement Manufacturers. Standard sand, coming under such recommendations, and really under the control of the committees of these bodies of national influence, becomes indispensable for testing purposes, and is universally recommended for the conducting of all tests of plastic materials, including lime and gypsum products, as well as Portland cement. As adopted by the technical societies mentioned it is accurately standardized and rigidly tested for such uses as follows:

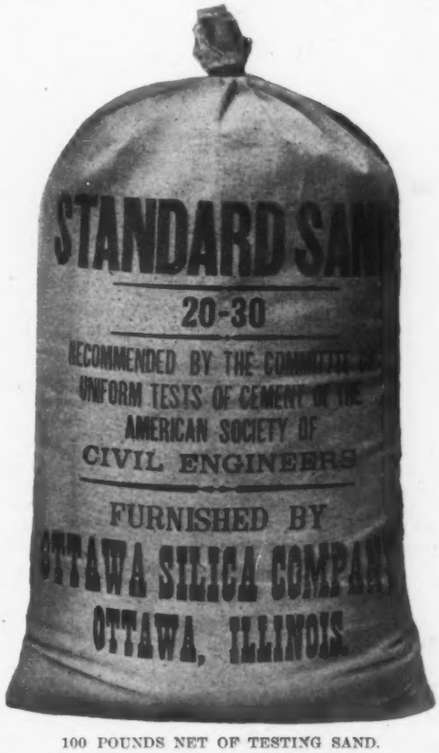
A 500-gram sample taken from each bag is sifted over a 20-mesh screen. It must all pass through the 20-mesh screen and not more than 1% of same can pass a 30-mesh screen.

One of our illustrations shows the testing laboratory with the operator comparing the result of the testing of a 500-gram sample from one of the bags of sand. Each and every bag of standard sand, after being carefully sifted in the operating department, is passed to this laboratory, where a 500-gram sample is withdrawn for sifting and the 1% passing No. 30 carefully weighed and checked. If the sample shows more than 1%, the entire bag is sent back for resifting; if found less than 1% the bag is closed and ready for shipment. Thus each and every bag is intelligently tested according to arrangements with the technical societies.

The importance of this standard testing material can hardly be calculated, for by use of the same all tests of materials and products may easily be made comparable the one with the other. This result has been worked out through a series of years by the best engineers of the country, including S. B. Newberry, of the Sandusky Portland Cement Co., and Richard L. Humphrey, president of the National Association of Cement Users and chief of the section of the Geological Survey for testing cement and other building materials, who has given a great deal of his time and attention to the work of this special committee as a member of all the societies which have taken an interest in and endorsed standard sand.



SILICA MINE OF THE OTTAWA SILICA COMPANY.



100 POUNDS NET OF TESTING SAND.

The sand is derived from a deposit of St. Peter quartzite, and a typical mine or quarry is the subject of another illustration. It is broken up, dried and sifted into sizes, washed and resifted, so that the product is physically perfect from the standpoint of its natural sizes. It is pure white in color, and the chemical analysis shows SiO_2 99:88, the remainder being made up of traces of alumina, alkalies and base.

It has been said that at no other place in this country is a comparable deposit of pure quartzite available for universal use as a standard sand.

The Ottawa Silica Co. owns no less than 300 acres of this exceptional quartzite deposit, sufficient to run both of the mills up to the present large capacity for many years. The company is composed of young and energetic business men who can be depended on to take care of their trade, even if it is found necessary to increase the amount of the output.

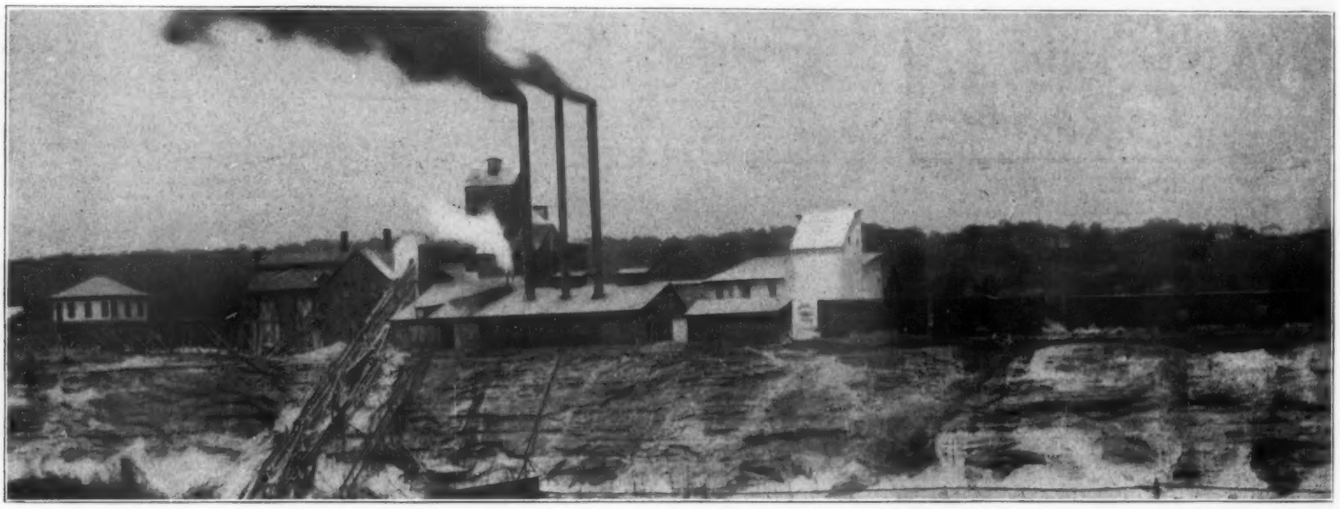
The plants of this company have exceptional transportation facilities through connections with the trunk lines of the Chicago, Burlington & Quincy and the Chicago, Rock Island & Pacific railroads. Its extensive operations include the shipment of sand for all of the staple purposes for which white sand is used, as well as the standard testing sand to every state in the Union and Canada and Mexico. Everywhere the product is recognized as the highest attainable grade of uniformly standard goods, prepared with all the expert intelligence and practical equipment that is necessary to obtain such results.

Will Enlarge Gravel Plant.

ABERDEEN, WASH., Nov. 18.—Fred Taylor, a contractor, and associates, will soon begin the erection of large gravel and sand bunkers on the river front. The installation will require the construction of a system of hoppers and receptacles on a large scale, the securing of a dredge and considerable heavy machinery.

THE SIFTING OPERATION IN PREPARING STANDARD SAND.

STANDARD TESTING SAND READY FOR SHIPMENT.



MILL A. PLANT OF THE OTTAWA SILICA COMPANY, OTTAWA, ILL.

Will Finish Big Contract Soon.

CAIRO, ILL., Nov. 18.—The Cairo Sand & Gravel Co.'s plant has been doing eminently satisfactory work during the last several weeks, under the direction of Superintendent Jean M. Allen. It has put into the low places on the west side of the city about 1,300 cubic yards of solid material per day, or nearly 10,000 cubic yards per week, pumping it up from the bottom of the Mississippi river and forcing it through a mile of pipe in the city. The quantity of soil material put in last week was 9,425 cubic yards by the dredging plant, and about 2,200 cubic yards by teams, a total of 11,625 yards. Contractor Fraser expects his steam loader here this week, when he will be able to greatly increase his work.

If the rate at which the work has been going on for several weeks past is kept up, the company will finish its contracts with the Cairo & Thebes railroad and with the city in a few months, there being about 60,000 cubic yards to do for the railroad company, and about 90,000 for the city.

Heavy Shipment of Sand.

BELOIT, WIS., Nov. 17.—The Atwood-Davis Sand Co. of this city last month shipped 817 cars of sand and gravel. The company has shipped from 600 to 800 cars per month all season.

The Crystal Sand Co., of Wheeling, W. Va., has been incorporated for $1,500 to operate a sand digging plant. The incorporators are D. C. Harkins and W. H. Cochran, of Wheeling; Mentor Hetzer, J. Howard Holt and J. W. Moorehead.

Sand Company Builds New Office.

BALTIMORE, MD., Nov. 19.—The Arundel Sand & Gravel Co., which has leased a part of Pier 2, Pratt street, has had prepared plans for an office building to be erected at once on Pratt street. The building will be a 2-story fireproof structure, after plans by Architect Charles M. Anderson. It will be 20 by 40 feet, and will have a concrete foundation, with cement tile roofing. Thomas Strous will do the building. The improvement will cost about $4,000.

Remove Moline Coffer Dam.

MOLINE, ILL., Nov. 20.—Manager Fred Gaul, of the Rock Island Sand & Gravel Co., has commenced removing the coffer dam back of the power house of the People's Power Co. in the Moline pool. The company removed its sand dredge there and is using it in removing the filling between the caissons. The work will occupy three or four days. The sand and gravel company is busy also in storing its winter's supply of sand for the builders.

Change of Gravel Route.

NEW ORLEANS, LA., Nov. 17.—The Thompson Gravel Company recently began hauling gravel direct from Profits Island on the company's barge to the incline of the Yazoo and Mississippi Valley road, and taking the gravel over the Baton Rouge and Hammond to the main line of the Illinois Central, where it is used for ballasting the Louisiana division. In the past this gravel has been hauled down the line of the Texas and Pacific, crossed on the incline of the Colorado Southern to the incline of the Yazoo and Mississippi Valley, and then taken out to the main line. On the new barge the gravel is pumped direct from the river to the cars on the barge, and brought down the river to the Yazoo and Mississippi Valley incline.

Larimer and Shaffer's Operations.

CEDAR RAPIDS, IA., Nov. 16.—Larimer & Shaffer are the only exclusive sand operators here, and they supply a large amount of sand and gravel for work in the city. They operate in the Cedar river. They have barges of forty-five-yard capacity each, which are taken up the river. The towboat is equipped with pumping apparatus and the sand is pumped from the river bottom onto the barge. The barge is then hauled down to their dock and the sand is lifted by derrick, equipped with a grab bucket, onto the bank. Here the teams are loaded and the sand is hauled to the job.

First Gravel Dumped.

LITTLE ROCK, ARK., Nov. 16.—The first gravel train from the Bethel gravel pits on the Memphis division of the Iron Mountain was run to the double track being built between Little Rock and McAlmont August 31. The train consisted of twenty-four gravel cars and the material was used to ballast a portion of the track which has been completed. It is estimated that eight trains, or about 200 cars of gravel, will be required to ballast the entire stretch.

Plant Destroyed By Fire.

Fire last month destroyed the three-story building of the New England Quartz Company, Roxbury Falls, Conn., and ruined a large quantity of valuable machinery used for making sanding paper dust. The loss is estimated at $150,000, only partially covered by insurance.

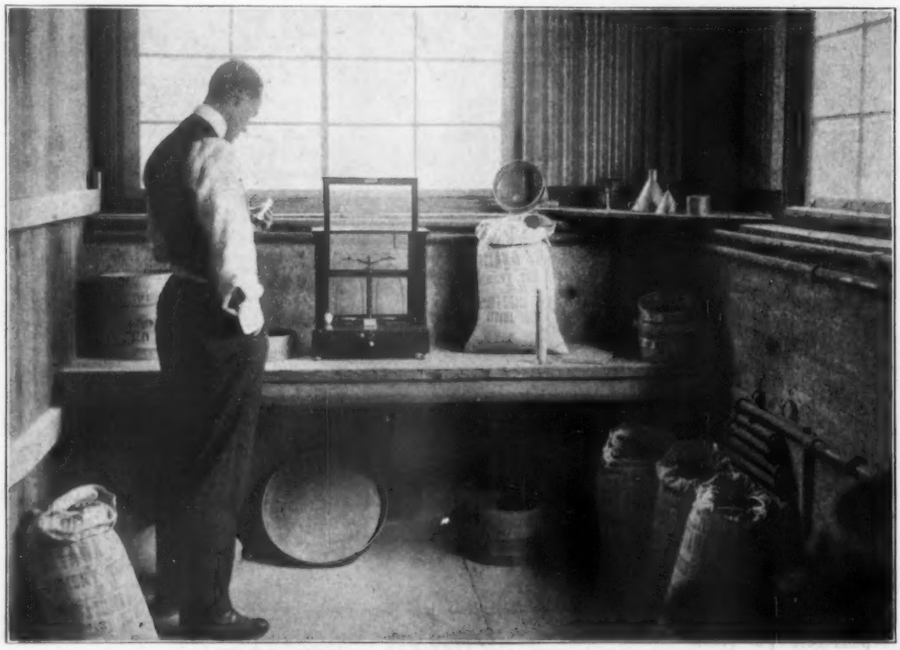
Change In Offices.

PITTSBURG, PA., Nov. 17.—The Rodgers Sand Co. has leased from the Safe Deposit & Trust Co. the corner room at Wood and Water streets, in the Conestoga building, and will take possession shortly.

Working Full Time.

LINCOLN, ILL., Nov. 17.—The Lincoln Sand and Gravel Company is working full time and is hoisting and delivering its product as fast as it can be handled.

The Contractors' Sand Company, of St. Joseph, Mo., has filed a statement increasing its capital stock from $21,000 to $39,000.



LABORATORY IN WHICH EACH AND EVERY BAG OF STANDARD SAND IS TESTED BEFORE SHIPMENT.

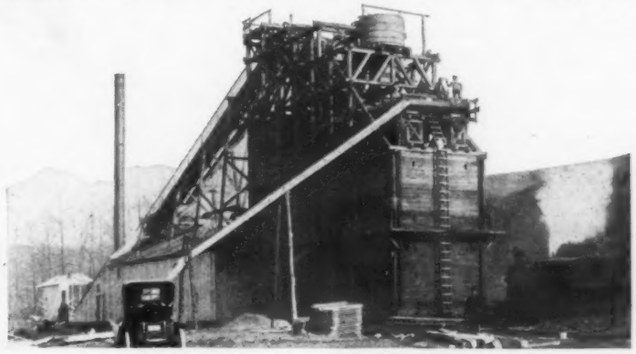
Akron Gravel & Sand Co.'s Washing Plant.

Just south of the city limits of Akron, Ohio, on a wedge-shape section of land lying between the Baltimore & Ohio and the Erie railroads, is the large gravel bank and washing plant of the Akron Gravel & Sand Co. It is in the plant that one finds the most of interest, since several new features have been introduced with much success by the engineers and builders, the J. C. Buckbee Co., of Chicago.

The gravel in this bank is quite dirty, carrying a large percentage of dark red earth and much clay, the latter occurring both in strata of varying thickness and in pockets. The bank is comparatively high, giving a face varying from 40 to 60'. Mining is accomplished with a 60-ton Marion steam shovel, served by a standard Hart ballast car and hauled by a 35-ton four-wheel saddle tank locomotive.

At the time the washing plant was constructed, or about one year ago, the only available building site was that resulting from previous excavations of the bank and consisted of a strip several hundred feet in length, but only 40' in width. The problem of placing the new plant in this confined section was most happily solved by putting the crusher and power house under the main conveyor trestle, in line with the bins, thus permitting the loading tracks on both sides of the bins to be extended the full length of the property, a most necessary feature in the operation of a plant, since ample storage capacity for both empty as well as loaded cars must be provided to tide over delays on the part of the railroads.

The gravel hopper for receiving the raw material from the bank sets just outside the inside loading track, and the hopper track runs parallel with the loading track; switches leading to the steam shovel.



WASHING PLANT, AKRON GRAVEL & SAND CO.

The hopper is of concrete, sunk even with the general ground level, and has a live capacity of about 40 cubic yards. The raw gravel flows through a gate in the bottom of hopper onto a 24" inclined belt conveyor running at right angles with and under the inside of loading track. This conveyor discharges onto the foot of the main conveyor leading to the washing plant. The main conveyor is likewise 24" in width and inclined at an angle of about twenty degrees from the horizontal.

The screening equipment consists of four 36 and 54x72" Gilbert screens and two 48 and 66x72" Gilbert screens. The first two are provided with 2" round holes, the second with ⅝", and the third two with ¼" holes.

The gravel, on being discharged from the head of main conveyor, divides and flows to the two first screens, the undersize from these screens flowing to the second set of screens, located just below and directly ahead of the first set. The oversize, or all stone larger than 2", are rejected by this screen and fall to a No. 4 Gates crusher located near the ground level at the end of the bins, in which they are broken down to the required size, and on being discharged from crusher fall to an 18" inclined belt conveyor running in an opposite direction to the main belt, conveying, elevating and delivering the crushed product onto the main conveyor at a point about midway of its length, and thus returning it again to the screens. The reject from the ⅝" screens, which is material passing a 2" hole, but larger than ⅝", is known as concrete material and falls to the bins below the screens. The reject from the ¼" screens is known as roofing gravel and falls to a second section of bins below the screens. The undersize from the ¼" screens flows into two long rectangular settling boxes, in which settles all of the coarse sand, this being discharged at intervals through small gates in the bottom of boxes into the bins below. The waste water, containing all of the soil and clay washed from the gravel, flows from these boxes to the spill-pond below the plant.

Water is first introduced as the gravel leaves the head of the main conveyor and carries the gravel into and through the various screens. On account of the tenacity with which the foreign matter adheres to the gravel, however, the engineers decided upon a novel means of further washing and disintegrating, consisting of a centrifugal pump of 250 gallons per minute capacity, which supplies nozzles placed in the front of every screen and directed against the natural flow of the gravel through the screen. The pump maintains a constant head on the jets equivalent to 100' elevation, or about 44 pounds pressure per square inch, as a result of which the water issuing from the nozzles has a velocity of about 80' per second, or almost a "mile a minute." Naturally the disintegrating and washing action is very thorough, as each piece of gravel is subjected by the rotation of the screen to the action of these jets, and as a result the product of the plant is perfectly clean, although the raw material is very dirty.

The bins are of the economical combination crib and framework construction developed and used by the J. C. Buckbee Co., described in ROCK PRODUCTS September 22 issue this year, and have a live capacity of about 500 cubic yards. Each bin is equipped with four side loading chutes, two on each side, all controlled from a gallery running entirely around the bins.

The main belt conveyor and screens are driven by an incline rope drive from main jack shaft of plant, located in power house under main conveyor trestle.

The power house equipment consists of a 150 h. p. Brown automatic engine, a 72"x18' return tubular boiler—open Cochrane heater, duplex feed pumps and an American two-stage centrifugal pump forcing water to the head of washing plant, all of which is compactly grouped in the power house under the main conveyor trestle.

This is the largest and most modern gravel-washing plant in Ohio, and is doing an excellent business over a territory of about 100 miles radius. The plans were started in August of last year by the J. C. Buckbee Co., engineers, of Chicago, construction work beginning in September, and the plant put in operation about the last of November, 1908, since when it has run steadily, barring the freezing weather of last winter, producing from 1,000 to 1,200 tons of washed gravel daily.

Hard Wall Plaster in Chicago.

"Only 15% of the plastering in Chicago is done with hard wall plaster," said a prominent dealer in builders' supplies. "Probably the reason for this is that there is no concerted effort on the part of the manufacturers to promote the uses of their product. Instead of doing so they go around when a job comes up and knock the other fellow's brand and show defects in it rather than confine their remarks to the merits of their own products. What is the result?

"Instead of a job being specified in hard wall plaster the ordinary mortar is used and all the plaster man gets is the short end of the business. The amount of hard wall plaster used in this great city does not compare in tonnage to that used in Toledo, Detroit and other much smaller cities. The manufacturers can well afford to get busy on this market and bring their goods to the favorable consideration of the consumer. What they need is publicity. They have the material and here is a market. Let them advertise more and then the figures in hard wall plastering in Chicago will be much different."

Sand, Gravel and Material Company Organized.

The Oklahoma Sand, Gravel & Material Company, St. Louis, Mo., has been incorporated, with a capital stock of $200,000, by Thomas Ledger, P. T. White and Frederick A. Reisenmy.

Features of Wilson Avenue Theatre.

Neighborhood theaters have, in the last few years, become the most popular of amusement houses in Chicago. They are the houses which cater to the people in the immediate vicinity of their location, and had their inception in the moving-picture show. From this has developed a business of tremendous proportions, so that now regular performances equal to those given in the downtown theaters are seen. With this development has come a better class of theater construction, and a typical example of one of the finest constructed as well as most artistic is the Wilson Avenue Theater, near Evanston avenue. One of the features of this house is the provision for handling the crowds. In other theaters of this class which have two shows an evening, the patrons for the later show are kept waiting in the lobby until those attending the first get out. To prevent the two crowds conflicting, arrangements were made here to have the patrons all move in one direction, toward the front. Doors for exit are arranged beside the stage which lead into passageways and out on another street, as the theater sits in a triangle. Thus there is no interference between the crowds.

The Wilson Avenue Theater comes under the class No. 5 theater. It is of absolutely fireproof construction throughout. No wood is used in the building except that of the doors. The supervising architect was H. L. Ottenheimer, and with him were associated Isaac L. Stern and William Reichert.

The building is 60' wide, 95' deep and 52' high. It consists of a main floor and one balcony. There are no posts in the building to obstruct the view, as the balcony is of cantilever construction. The steel is suspended from the bearings and the inside wall, which to the balcony railing is 24'. It contains eleven banks of seats. From the side-bearing walls is suspended a 5' balcony carried on brackets and girders and connected with the stage and balcony. The theater seats 1,000 people. All floors are of concrete construction and the slabs are 2" thick. Underneath the floor is a conduit, 3' in diameter, through which all the pipes and wires are carried and arranged so that repair work on any of these can be made without taking up the flooring.

The stage is 44' by 20' and 55' high. It is separately constructed entirely. The stage opening is 26'6" wide and 23' high. All the dressing rooms for the performers are underneath the stage.

The steel work of the building is 10" channel lattice girders. The ceiling is elliptical in shape and suspended from the roof. Channel irons suspend the expanded metal on which the plaster is carried.

Like all theaters the plaster work is one of the features. In this the architect designed special ornamental work rather than use the stock patterns of manufacturers. The plaster work was executed by Lennox & Holderman, of Chicago. The products of the United States Gypsum Co. were used.

Special attention was given to the ventilation system, and the Sturtevant Co. installed a fan which draws the air from the back of the house through four vents and carries it outside. By this system the air is changed every twenty minutes.

The lighting fixtures and brass ornamental work were especially designed for this building and were installed by Victor Pearlman, of Chicago.

The masonry and fireproofing were done by P. Miller.

The canopy over the sidewalk is another feature of the building. This is suspended and extends over the sidewalk 20'. It is of steel and the roof is covered with asbestos.

The owners of the theater are Jones, Linick & Schaefer. That they have made a success of a theater of this class is demonstrated nightly by the crowds which attend each performance. They are to be congratulated on the selection of such a type of construction resulting in an artistic as well as a thoroughly fireproof building.

Manager Disappears, Plant Sold.

MEMPHIS, TENN., Nov. 19.—The National Plaster & Material Co., which last month completed its plant, has met with disaster. E. M. Forbes, president and general manager, has disappeared and the stock which consisted of lime and cement has been sold at receiver's sale. It has developed that the furniture used in the offices of the company was only leased and has been removed.

Unique Plan of New Playhouse.

Plaster enters largely into the construction of the new Cort theater, another fine example of fireproof architecture in Chicago. This structure, recently completed, is said to be the only building of its kind in the country. Architect J. E. O. Pridmore, who drew the plans, had in mind the erection of an edifice which, while reproducing so far as possible the picturesque features of the historic open-air theater at Taormina, Italy, built 500 years B. C., would be in strict compliance with our city building ordinances, while at the same time insuring due provision for the luxurious comfort of modern playgoers. The result is a structure unique in architecture, safe in construction and most pleasing to the eye. In securing these features, Architect Pridmore was ably and intelligently assisted by the general contractors, the Henry Ericsson Co.

McNulty Bros., of Chicago, did the plaster work, including the great group surmounting the proscenium arch, and the other sculptural effects adorning the house, using the product of the United States Gypsum Co.

In a general way the Cort theater may be described as of steel frame, concrete, terra cotta and brick wall-bearing construction. As there is no excessive weight in the superstructure, the sinking of caissons for the foundation was not considered necessary. The building rests upon walls and columns of concrete grout. The walls are 17 inches in thickness, and these, with four massive concrete columns, reinforced with iron rods of from ⅝ to 1 inch diameter, sustain the weight of the superstructure. Two of these columns are 8′x 13′ and two 7′x12′6″ in size. They are placed at points where the bulk of the strain rests. In addition to these there are eight reinforced concrete columns, 4′x4′, the office of which is to hold up the main floor.

The roof is supported by five massive steel trusses, shut off from the view of the spectators by a false ceiling, while the proscenium arch and walls are sustained on the cantilever plan with eight 24-inch I steel beams, four being used on each side. The front wall, above the street, is of brick, 2′5″ thick, and the side walls, also of brick, are 1′9″ in thickness. The building is of unusual proportions, having a frontage of 82 feet on Dearborn street, while the depth is only 80 feet, and of this 23 feet is taken for the stage. This arrangement results in what is known in the theatrical profession as a "whispering" house, every seat being within easy speaking distance of the stage.

Gray granite terra cotta, with a warm shade of face brick, and a green Italian tile roof, constitutes the front exterior. The Grecian style of architecture, classic in its dignified simplicity, has been adhered to. Terra cotta, with concrete floors and metal doors, prevails in the interior. Here again the Grecian style predominates, Architect Pridmore having followed as closely as possible in a modern structure the general lines of the historic open-air theater at Taormina.

There are no pillars or other obstructions on the main floor, as the galleries are constructed on the cantilever principle, thus obviating the necessity for support from beneath. Immediately above the main floor is the mezzanine, containing smoking and lounging rooms, etc., and above these in turn are two galleries. The private boxes are constructed on the loge pattern. Throughout the interior the dominant tone is old ivory, broken here and there with gray greens, antique bronze, and hangings of warm red from the upper pergola.

On the steel fire curtain is a reproduction of scenes about the old open-air theater at Taormina, painted by Peyraud, from data, photographs and other information obtained by Architect Pridmore, who made a trip to Sicily for this purpose. On both sides, serving as backgrounds for the upper loges, are continuations of the same scenes, also painted by Peyraud, while flanking the proscenium arch, in itself an impressive bit of architecture, are magnificent fluted columns of marble-like effect, the whole producing a panorama in viewing which the spectator may well imagine himself transported to scenes of ancient splendor.

As it stands today, the Cort theater is a revelation in playhouse construction, preserving all the interesting features which made the work of the old Greeks and Romans famous, and at the same time introducing the most modern methods of construction tending to conserve both comfort and safety. The cost of the structure was $125,000. It will seat about 1,000 people.

INTERIOR VIEW OF THE NEW CORT THEATER, CHICAGO.

Large Mixing Plant in Chicago.

With the advent of the Knickerbocker Ice Co. into the Chicago field as dealers in builders' supplies has come the natural expansion of the various departments in this line, until the concern has become one of the important factors in this city. Its latest move has been to establish a plaster department on a large scale under competent management, Paul Smith being selected for the position.

Previous to September the plaster handled by this company was purchased from other manufacturers. At that time the company located a site for a mixing plant to supply the trade with material of its own manufacture. This plant is on Thirty-first street and the L. S. & M. S. railway. The building is three stories high and conveniently located so that cars may be loaded and unloaded. The sand for the product is produced at the company's own pits and large bins in the rear of the mixing building provide ample facilities for this storage. A worm conveys the sand into the building and drops it into the dryer. After passing through this the dried sand is elevated to the third floor and screened. It is then spouted into a bin and fed to the mixer hopper, where the other ingredients necessary to the finished material are added. The Brougham mixer has a capacity of 100 tons per day and the material is sacked on the first floor, being ready for shipment. The goods are put out under the Knickerbocker brand.

KNICKERBOCKER ICE CO.'S WALL PLASTER FACTORY.

Each yard, of which there are twenty-six in all, is supplied with plaster from this plant. It is the intention of the company to establish other mixing plants—one on the North side and one on the West side—to supply the yards in these districts. In selecting Mr. Smith for manager of this department the company used rare judgment as it has secured a man who is well equipped and capable in every way in the manufacture and sale of hard wall plaster. Mr. Smith has had many years' experience in every department, and has practically devoted all his business life to this industry. Association with his father in the old Rock Plaster Co., of Chicago, was the foundation of his experience in the operation of a mixing plant. Later, service with the United States Gypsum Co. and then with the Plymouth Gypsum Co. broadened his scope and field of operations. In the short time of his management the plaster department of the Knickerbocker Ice Co. has shown remarkable growth.

Begin Work on Fort Dodge Mill.

FORT DODGE, IOWA, Nov. 18.—Work has been commenced on the mill of the Wasem Gypsum Co. The concrete foundations for the building have been put in and it is the intention to have the plant ready by the spring of 1910. Track connections from both the Illinois Central and the Chicago & Great Western roads will be laid.

Will Rebuild Plaster Plant.

OKEENE, OKLA., Nov. 18.—J. C. Fisher, president of the Southwestern Cement Plaster Co., reports that the company will rebuild its plant recently burned. It will be a 60x250-foot frame building of ordinary construction, and cost $25,000. After the old machinery is assembled and the damage ascertained, plans and specifications will be furnished for new equipment. The capacity of plant is 200 tons daily.

New Incorporation.

Lawrence Kelly & Son, Inc., has been organized in New York City for plain and ornamental plastering, etc. Capital stock, $500. Incorporators: Lawrence Kelly, Howard C. Kelly, 229 West One Hundred and Thirty-fifth Street, New York, and Frederick Waterbury, Mt. Vernon, N. Y.

QUARRIES

Crushed Rock Production in 1908.

Statistics compiled by A. T. Coons, of the U. S. Geological Survey, in a booklet on the production of stone, indicates that crushed rock is in the front rank of stone productions. The figures are as follows:

Limestone for crushed stone shows a higher value than any other limestone product; it is used for road making, railroad ballast, concrete paving, etc. In 1908 this output was 22,913,494 short tons, valued at $12,908,207, a decrease of 619,403 short tons in quantity and of $767,246 in value for 1908 as compared with 1907, when the figures were 23,532, 897 short tons, valued at $13,675,453. In 1907 the increase over 1906, when the output was reported as 20,286,589 short tons, valued at $11,073,265, was 3,246,308 short tons in quantity and $2,602,188 in value.

In 1908 the total was divided into 11,910,760 short tons, valued at $6,880,893, for road making; 5,095,109 short tons, valued at $2,530,738, for railroad ballast; and 5,907,625 short tons, valued at $3,496,576, for concrete, which compared with the itemized output for 1907—road making, 9,619,178 tons, valued at $5,860,977; railroad ballast, 8,122,342 tons, valued at $4,144,345; concrete, 5,791,377 tons, valued at $3,670,131—shows an increase of 2,291,582 tons in quantity and of $1,019,916 in value for road making, a decrease of 3,027,233 tons in quantity and $1,613,607 in value for railroad ballast, and an increase of 116,248 tons in quantity and a decrease of $173,555 in value for concrete. It is possible that the stone for road making includes some stone used for concrete, some of the operators reporting that they were unable to subdivide, except approximately, their total output of crushed stone, not knowing the exact use which was to be made of the stone. The average price per short ton was 56 cents in 1908 compared with 58 cents in 1907.

Ohio ranked first in 1908 in the production of crushed limestone, followed by Illinois, New York, Pennsylvania, Missouri, Indiana, Wisconsin, Kentucky and Tennessee, in the order named. In 1907 Illinois held first place, followed by Ohio, New York, Pennsylvania, Missouri, Indiana, Kentucky, Wisconsin and Kansas, in the order named. In 1908 the values reported by these nine states ranged from $2,032,925 to $328,685, and represented 82.60 percent of the total crushed limestone output; in 1907 the values for the nine states ranged from $2,576,155 to $489,709, and represented 83.46 per cent of the total crushed limestone. Ohio, New York, Illinois, Missouri, Pennsylvania, Indiana, Wisconsin, Kentucky, Tennessee and Michigan, named according to value of output, produced the greater part of the stone for road making, a considerable increase being noted in Tennessee, due to a large quantity of stone crushed locally for new roads. Most of the railroad ballast was furnished by Illinois, Ohio, Pennsylvania, Kansas and New York, named according to rank of output. Concrete stone was principally from Illinois, although large values were reported by New York, Pennsylvania, Missouri, Ohio and Wisconsin.

Furnace Flux.

Next to crushed stone, limestone sold for furnace flux shows the largest value. This product, on account of the shutting down of a large number of iron furnaces late in 1907, showed a large decrease in both quantity and value of output. The output in 1907 was 17,119,297 long tons, valued at $9,144,489; in 1908 the output dropped to 11,091,442 long tons, valued at $5,905,241, a decrease of 6,027,855 long tons in quantity and of $3,239,248 in value. In 1907 the increase over 1906, when the output was 16,077,202 long tons, valued at $7,612,692, was 1,042,095 tons in quantity and $1,531,797 in value. The average price per ton was 53 cents in 1908 and 1907, and 47 cents in 1906. Pennsylvania, Ohio, Illinois, Alabama, West Virginia and Colorado were the principal states producing this class of stone. All the states show a decreased output, except California and Illinois.

Other Purposes.

Stone reported as sold to sugar refiners increased in value from $316,860 in 1907 to $361,186 in 1908, a gain of $44,326. Stone for other purposes includes stone quarried and used by alkali works in New York and Michigan, stone sold to glass factories, to paper mills, to carbonic acid plants, for making whiting and mineral wool, and also a small quantity sold to farmers for burning into lime to be used as a fertilizer, it being impossible to get the lime value for this stone. The output decreased $231,934 in value from $1,324,601 in 1907 to $1,092,667 in 1908.

Starting Up Quarries and Crusher.

ALTON, ILL., Nov. 17.—The Hop Hollow quarries and crusher are to be started up at once by the lessees. Charley Fade, one of them, is an experienced crusher operator who sees a prosperous season ahead for the enterprise. It will give employment to many men, but these appear to be hard to get.

California Quarries Transferred.

SAN FRANCISCO, CAL., Nov. 12.—The Gray Brothers Crushed Rock Co. has conveyed its property at Telegraph Hill to the Golden Gate Tile Co. The transfer places the property in the name of the Golden Gate Tile Co., which is represented as a corporation differing in little but the name from that of the grantor corporation.

Casparis Co. Orders Another Shovel.

The Casparis Stone Co. of Columbus, Ohio, has ordered from the Marion Steam Shovel Co. of Marion, O., another electric shovel. It will include two 75 h. p. series wound direct current motors of the railway type and one 150 h. p. composite motor, with the necessary controlling devices, which will be supplied by the Allis-Chalmers Co. Something over a year ago the Marion Co. built the first electric shovel for this customer and its success has been marked. The new machine will be practically a duplicate of the first.

Big Order For Crushed Stone.

John J. Sullivan, owner of the Rylstone quarry at Gouverneur, N. Y., has just received one of the largest orders for crushed stone ever taken by any local concern. The contract is from the United States government and calls for 1,000 carloads to be used on the Oswego breakwater. The work of delivery will be begun at once and will cover a period of nearly a year.

Wants Well-Drilling Machinery.

Louro M. Guerra y Hermano, Apartado Postal 540, Mexico City, desires to purchase a lot of well-drilling machinery, and would like to have quotations immediately on all sizes, giving weights and all other information.

Plan to Treble Output of Quarry.

MARSHALLTOWN, IA., Nov. 17.—The Northwestern Railroad Co. is planning to greatly increase the output of the Le Grand Quarry Co.'s quarries, which it now operates. By installing new crushers the company expects by next spring to have the capacity of the plant trebled. The quarry will not be operated during the severe winter weather. The crushed stone, which is now the sole product of the quarry, is being used on the Iowa division of the road for ballast and concrete work.

New Iowa Ballast Plant.

CLINTON, IOWA, Nov. 16.—The Chicago & Northwestern railway company is making preparations for the installation of rock crushing machinery to treble the capacity of the quarries at Quarry.

Trying New Rock Product.

AURORA, ILL., Nov. 19.—Contractor A. E. Price is the first to try the crushed rock from the new crusher and quarry of Col. George Fabyan at Laurelwood. Mr. Price has contracted for several hundred loads of this rock as a foundation for the new Wilson street "Taroil" paving. On top of the Fabyan crushed rock he will place a coating of the gray crushed rock from the South Elgin quarries, the patent "Taroil" paving material going on top of the gray rock.

Eureka Stone Crusher Co.'s New Factory.

CEDAR RAPIDS, IOWA, Nov. 19.—The Eureka Stone Crusher Co.'s factory for the manufacture of stone crushers is rapidly nearing completion. The machinery is being installed and before long will be turning out complete crushers in all sizes. This crusher is now well known, although it has been on the market in the United States only a few years. The first of this type of crusher was manufactured in Germany, where it is turned out on a large scale. The machines are in use in all parts of the world. The Eureka Stone Crusher Co. has made several improvements on the original.

Whitehouse Co. is Busy.

TOLEDO, OHIO, Nov. 19.—Crushed stone men have had a busy fall and there does not seem to be any let-up thus far. One of the busiest plants is that of the Whitehouse Stone Co., which has everything running in fine shape.

Electricity for Rock Crushers.

FRESNO, CAL., Nov. 15.—Information received from reliable sources says the Santa Fe railroad is to use 100,000,000 tons of crushed rock from Fresno county in ballasting its roadbed from Stockton along the entire San Joaquin valley. The rock is to come from the quarries near the source of King's river and it is stated that an agreement has practically been reached between the San Joaquin Light & Power Co. and the officials of the Santa Fe, whereby the first named corporation is to furnish the necessary power for the crushers at the quarries from its Crane Valley plant, which is now in course of construction.

Has Greatly Increased Capacity.

BIRDSBORO, PA., Nov. 19.—The Birdsboro Stone Co., formerly known as the Schuylkill Stone Co., the quarries and plant of which are located about 2 miles from here on the Schuylkill division of the Pennsylvania railroad, has greatly increased its output by the installing of additional equipment. The Power & Mining Machinery Co. has installed a crusher, undoubtedly one of the largest of its kind ever built. It is capable of receiving a piece of stone 5′ thick by 7′ long and reducing it to 10″ size in one operation. It has a 60″x84″ opening and can crush any rock that can be handled by a steam shovel. The capacity of this crusher will be approximately 600 tons per hour. In other words the capacity of the plant will be 6,000 tons of stone in ten hours. The material to be crushed is commonly known as Birdsboro trap rock. After the large crusher breaks it down to 10″ size it passes directly to the No. 10 and No. 7½ crushers, after which it is elevated in a 60″ pan conveyor to two large scalping screens 84′ in diameter and 15′ long. The perforations the entire length of these screens are 3″ holes. All of the product going through the 3″ perforations is discharged by gravity to two 60″x16′ screens. The first six feet of the perforations on these screens are 2″ holes and the balance of the screen is 2½″ holes. The material running out of the end screens is material that has already passed a 3″ ring and this is ballast size, there being no oversize stone, as all has already passed the 3″ perforations in the scalping screens. All of the material passing through the first 6′ section of 2″ perforations is discharged by gravity into two 60″x24′ screens which make four separations of stone down to ¼″, the 24′ screens having 10′ dust jackets at the head end. Oversizes from the 84″x15′ screens are returned by gravity to two No. 6 and two No. 7½ crushers.

This company has large ballast contracts with the Pennsylvania railway, and seems to be securing control of the crushed stone business in the locality of Philadelphia. The plant is operated by cross compound Corliss engines, and it has a separate power plant for generating electricity for lighting the crusher house and quarries for night work. It also has a complete belt conveyor system and ground storage for 20,000 yards of stone. Material is taken from the crusher bins and stored on the ground. A 600′ conveyor runs under the storage piles, and any size stone can be drawn from the piles and carried to a switch nearby, where it is loaded on cars.

The approximate cost, including machinery, was in the neighborhood of $75,000. The officers of the Birdsboro Stone Co. are C. A. Bergdoll, of Philadelphia, president; W. Oliver Craig, vice president and general manager, and C. W. Snyder, general superintendent at the quarry and plant.

Rock Crushing Plant at Ancon, Canal Zone.

According to the Canal Record the Ancon quarry rock crushing plant will probably be completed and ready for operation before the end of November. The concrete work, with the exception of the foundations for the motors, is practically finished; the belt conveyor shed has been erected and part of the conveyor apparatus installed. The four No. 6 rock crushing machines are in position, and the large No. 12 crusher is being placed. A frame superstructure will be built to enclose the crusher machinery and the motors which are to drive it. It will consist of a main building 44 feet square, which will afford shelter for the No. 12 machine; a second building 22 feet wide for the four secondary crushers, and a still smaller building 10 feet wide, which will protect four of the motors. The motors, seven in number, consist of one of 750 h. p., which will operate the main crusher, and will be placed at one side of it, four of 250 h. p. each, which will drive the four smaller crushers and will be placed directly below them, and two motors of 30 h. p. each, which will be located over the storage bin, one at each end, to drive the conveyor apparatus. The stripping operations have been steadily continued, and a considerable portion of the rock face has been exposed.

New Rock Crushing Plant.

SYRACUSE, N. Y., Nov. 18.—It is said that the search of the Solvay Process Co. for more limestone has resulted in the purchase of several hundred acres of Jamesville properties, with the prospect of the establishment of a stone crushing plant of twenty acres in that town.

When one of the Solvay Process Co.'s people was asked about the purchase, he said that it was along the line of policy of the company to acquire limestone lands whenever possible. Whether a stone crushing plant was to be established he could not say. However, in Jamesville the story is told that a crushing plant is to be built.

GOOD ROADS.

Convention of National Congress at Columbus, O., is Largely Attended and Productive of Much Good.

In number of delegates attending, work accomplished, and enthusiasm manifested the Good Roads Congress at Columbus, Ohio, last month was the greatest and most successful gathering of good roads men ever held in this country. Over 1,500 delegates were registered at this meeting, representing 33 states with 71,000,000 population, or 82 per cent of all the people in the United States.

It is evident the people are at last fully awakened to the important question of good roads, and are bending every effort to attain results much needed to develop and benefit all sections of the country. This awakening came first ten years ago with the bicycle age and reached the stage of enthusiasm when the automobile came into general use.

Making of roads started in Virginia in 1632. Actual construction, however, hardly started till after the days of the Revolution. In 1828 Pennsylvania had 2,380 miles of road, such as they were. Government interest in roads started with provision for a national road from a point on the Potomac river near Washington to the Mississippi river. In 1861 the total Federal road expense was only $15,000,000. Since that time and practically up to ten years ago little interest was shown in the construction of highways; the roads were bad, improvements small, mainly depending upon the meagre resources of counties and townships, without the aid of either state or national government. While the bad condition of roads throughout the country was known in a general way, the people used them but little, and cared less how bad they were. The farmer, on the other hand, who did care and who did suffer by reason of this condition, knew by hard-earned experience the almost impassable condition of the highways in bad weather, being compelled to haul over these roads his farm products to town or to freight station. But he was helpless to make any change for the better on account of lack of resources and lack of influence to arouse a general interest. All this, however, changed from the time the automobile first made its appearance on the country roads. It frightened the farmers' horses and played pranks in other ways, engendering bitter enmity, and when an automobilist met with mishap caused by the bad condition of the highway the farmer extended little sympathy. The latter did not realize at the time that this to him obnoxious machine would bring the aid and resources in a short time to better his condition, increase the value of his farm and enable him to enjoy conveniences he little dreamed of when his feelings were harassed at the sight and sound of the hated gasoline wagon.

The good roads movement began to take on perceptible strength and form with the development of the automobile industry. Interest sprang up and increased in all parts of the country where automobiles were sold. People using these machines were not satisfied in limiting their pleasure drives to well-paved and well-kept streets in cities, and took long trips through the country. On these extended trips they met with obstacles and mishaps on poor roads which not only marred their enjoyment but ruined their machines. Then organized effort was put forth and interest was created in the good roads movement which is now sweeping the country, but insurmountable obstacles apparently at first were found to block the way in many localities. In the Mississippi delta country, for instance, where land was almost worthless a few years ago because of the clay-like nature of the soil which made roads practicably impassible and seemed a bar to modern highway construction, government road-building experts experimented and found a successful and practical method of building a hard and permanent road bed. In the middle states no such problems of soil confront the people. In the state of Ohio the chief material used in the construction of road beds is crushed rock, which can be had in unlimited quantities and at very reasonable cost. Men like Thomas Doherty of Toledo; G. B. Christian, of Marion; W. H. Loy, of Piqua, and others at the head of the great crushed-stone industry of that state, have taken the greatest of interest in the good roads movement and been active in its promotion for years, give assurance of an unlimited supply at a reasonable cost.

The main problem which confronts the people in this movement was discussed at the meeting of the Ohio Good Roads Federation at Columbus. It was found to lay in the lack of co-operation of the state and federal governments with the various counties and townships. The fact was brought out clearly that the financial resources of most of the states are inadequate to meet the urgent demands for immediate road improvement and justified the people in demanding of the national government co-operation with the various states in furnishing expert advice and assistance, and by appropriations to be expended, in connection with state plans for road construction. In remote country districts it would be useless to ask big appropriations, unless it can be shown that these funds will be expended wisely, which can be assured under government expert advice and supervision. Several speakers at this convention held that it was reasonable to ask this aid of the government in the construction of roads which benefit many farmers in the land and help more than any one other measure to develop the country. Other speakers criticised the government for using appropriations for building roads in the Philippines when they were much more needed in this country. It was held that the time is ripe for the people to make it clear to their representatives in congress that they will insist on liberal appropriations for highway improvements. The average politician keeps his ear low to the ground and when he hears the angry hum of the people's voice with the rumbling noise of automobile wheels, he will believe it wise to give the people such legislation as will provide the country with the good roads which it needs so badly.

FIRST DAY'S SESSION.

Logan Waller Page, Washington, D. C., director of the department of highways, in the department of agriculture, after outlining the work under his direction, in response to a question, said he would be glad to send a representative or engineer into any section of Ohio or any other state, if a request was received through the proper authorities. The government would pay the bills. He sketched the history of American roads from the first white settlement, when the rivers were the highways and paths were laid out to them and the churches from the plantations. In 1821 the cost of transporting a barrel of mackerel from Philadelphia to Pittsburg was 70 cents a ton mile, while the same service now costs only a fraction of a mill.

In 1892, Mr. Page said, a law was passed by congress providing for a highway commission. Among the members were Senator Chas. F. Manderson of Nebraska; Philip D. Armour, Leland Stanford, Clem Studebaker, the late President A. J. Cassatt of the Pennsylvania railroad, Vice President W. Seward Webb of the New York Central, and Col. A. A. Pope. The present road department followed and has developed until a testing station is maintained for road materials, trained engineers are available as consulting experts, and they will go into any county, and after exhaustive study of local conditions, recommend a plan for general road improvement which will give the best results at least expense. Continuing, Mr. Page said:

Briefly summarized, our educational work may be said to have for its object, first, reforms in road laws; second, reforms in road administration; third, the introduction of the best methods of construction and maintenance; fourth, improvement in the efficiency of local road builders; fifth, the utilization of the most suitable road materials available. This has been done through publications, lectures and short demonstration roads.

Many more projects of more or less similar nature have been brought before us in the effort to devise methods to meet local conditions. We have, for example, been quite extensively engaged during the last year in a study of methods to improve the roads in the sandy regions of Kansas and Nebraska. Work of this character is among the things offered without expense to every Ohio community.

Through its laboratories, the department has proved that slag from steel and iron furnaces, now considered worthless as road material because of its low cementing qualities, may be given a high cementing value by mixing with lime, or limestone, and make a very efficient road material.

A. H. Huston, chairman of the general committee on arrangements, presided over the first session in the morning. He said that Columbus was the natural traffic center of Ohio, and that the system of road building which the state should inaugurate, ought to radiate from Columbus to every section like spokes from the hub of a wheel.

President MacDonald of the Road Makers called attention to the growth since his organization started six years ago with six in attendance at the first convention. William H. Hager of Cleveland, president of the Ohio Good Roads Federation, and Secretary O. J. Townsend of the County Commissioners' Association of Ohio, in the absence of President Henry A. Mason, responded for their organizations.

Najum H. Bachelder, former governor of New Hampshire and master of the National Grange, discussed the question of highway improvement under the caption of "Good Roads a National Issue."

"There are two basic propositions involved," he said, "first, securing the necessary funds for the construction and maintenance of improved roads; and second, expending these funds so as to construct the greatest possible mileage of permanently improved roads at the lowest possible cost. Assuming that all the states establish highway commissions, it is evident that the financial resources of most of the states are inadequate to meet the urgent demand for immediate measures of road improvement. Here seems to be justification for the demand of the National Grange that the national government should coöperate with the various states and furnish appropriations to be expended in connection with the state plans for road construction. Admitting that opposition has sprung up to national aid, none of the objections offered was material.

"A constitutional amendment, authorizing the imposition of a federal tax, has been submitted to the states and, if duly ratified, it may be expected that such a tax will become a part of our national revenue system. The opposition in congress to this plan strangely enough comes from the same people who favor subsidizing the merchant marine, and if the farmers are taxed for this private industry they will make it clear to their representatives in congress that they must make a liberal appropriation for highway improvement."

Frank F. Rogers, deputy highway commissioner of Michigan, discussed "Michigan's Road Problem," and in doing so said it is just about the same problem that confronts every state in the Middle West. In Michigan, he said, there is an average of 1.2 miles of highway for each square mile of area and one mile of highway for each 36 persons. During the last eight years Michigan has levied an average annual highway tax of $3,196,340. In 1908 this tax amounted to $4,222,872, showing an increase in eight years of about 75 per cent, which may be taken as a practical measure of an awakened sentiment in Michigan for better highways. There is an opinion among many that all of the leading highways of Michigan can, within the next two decades, be either gravelled or macadamized with only a slight increase in the present rate of taxation—provided all the money were used to the best advantage, but in the past this has not been done.

Of the 70,000 miles of road only one-fifth can be classed as main-traveled roads. In the four years ending July 1, 1909, there had been constructed 358.55 miles of road on which the state reward had been paid; 186.26 were gravelled, 165.11 were macadamized and 7.18 miles were constructed of other material. After deducting the care of cost and maintenance of roads, the cost of bridges, etc., there would be to the state credit for permanent road building the sum of $2,522,872, and an average net cost of $2,410 to the community, this would construct 1050 miles of road every year. If state appropriations were lacking and the entire cost of $3,167 per mile were paid from this reserve, the entire 14,000 miles of road could be made good in 18 years. In conclusion, he said that judging from those localities where some of the roads have been improved, there would be no difficulty in securing additional funds for the maintenance of such roads.

Separate meetings of the three organizations were held October 27th. The Ohio Good Roads Federation was most prominent, with its program for the winter's legislative campaign and many eminent state speakers.

SECOND DAY'S SESSION.

The visitors devoted the second day of the convention to inspecting exhibits and watching construction of the demonstration roads. They seemed the most deeply interested in their work of any convention visitors Columbus ever entertained. There was every manner of road enthusiast, from the millionaire manufacturer of machinery down to the farmer who wants a good highway along his place.

This was the first time exhibits have been made in connection with the convention and the number and quality was a surprise to the promoters.

The Ohio Good Roads Federation adopted the report of the resolutions committee, indorsing the Alsdorf county aid bill, with the new provision for perpetual maintenance, and urging appointment by the governor of a disinterested commission of three, without pay, to determine the order of highway improvement in each county, or information furnished by county commissioners and township trustees. Although the vote was unanimous, there was some opposition to the commission plan. The objectors said it was a reflection on the state highway department, for the order could apply only in the case of roads constructed with state aid, and the highway commissioner now has power to determine the order of improvements. The answer to them was that there was no reflection on the ability of the commissioner, only a desire to relieve him of an unpleasant and annoying task.

One of the most important projects to be supported this winter by the legislative committee was not covered in the resolutions, but was brought out by some of the speakers. About half of the present state highway appropriation now goes to counties for repairs and is wasted, so far as permanent betterment goes. The counties save the amount from their road levy and refuse to build real highways, while the commissioners can point to reduced taxes. The association seeks to have state money used solely for con-

struction, with money unclaimed by counties apportioned to those which really build roads.

Another resolution directed the president of the federation to take up with the railroads the question of freight charges and demurrages on highway material. Charges are said to be unreasonably high and demurrage rules not suitable to conditions. A fight also may be made before the railroad commission.

The road men say the railroads are adopting a short-sighted policy in hindering road improvements. Seven division freight agents representing various railroads, attended the congress as evidence of the interest of the railways in making roads which will enable the farmer to haul his products to the freight station.

In electing officers, W. M. Hager, of Cleveland, president the first year, retired, the vice presidents were moved up and a new fifth vice president elected. The secretary and treasurer were re-elected. The new officers are:

A. H. Huston, Columbus, president; Jesse Taylor, Jamestown, first vice president; C. S. Ashbrook, Mansfield, second vice president; F. J. Fry, Tiffin, third vice president; Dr. A. F. Boak, Cleveland, fourth vice president; M. M. Maxwell, Cleveland, secretary; J. F. Stone, Columbus, treasurer.

Senator N. O. Mather, of Akron, extending greetings from the senate, said the highway department law should be strengthened in many particulars. The law now says that when the commissioners receive a petition from property owners for the improvement of a road they "may" proceed. Sometimes the petitions are sidetracked and forgotten. Mr. Mather thought the direction to the commissioners should be mandatory, and an appeal be allowed to common pleas court. He promised his assistance to road legislation.

Discussion over uniform improvement specifications brought out the assertion that with their adoption in every county, quarrymen could supply stone at 50 cents a ton and make a profit. R. F. Pauch of Columbus presented the subject for the producers. He told of one instance where his firm had stone rejected and new screens were secured twice, with more rejections. Then stone from the first screen was accepted on the job. The screen and incidental expenses were $360. J. C. Wonders, highway commissioner, told of his department's work to secure uniform specifications. George B. Christian, of Marion, another producer, made the assertion about the low price.

M. M. Maxwell, secretary of the federation, told at length of the development of the road improvement in Ohio and the progress made by the organization in its first year.

Fred H. Caley, automobile registrar, outlined the state automobile registration. He said receipts this year would be $105,000, with $150,000 expected next year. Of the $5 paid for each machine, $1.05 is required to maintain the department and the balance goes for road improvements in the counties. Of the 23,000 automobiles registered in Ohio, more than 500 are in Columbus. Every county is represented. Next year 40,000 machines are expected, of which one in 50 will be electric.

While much automobile legislation was expected this winter, Mr. Caley said that all the department wanted was to be let alone and have nothing done which would weaken its effectiveness.

Samuel H. Hill of Seattle, with a "little farm" of the richest Washington land, six miles long and three miles wide, owner of a few newspapers and banks, once officer in many railroads in the Northwest and who maintains homes in Washington, D. C., and Lenox, Mass., was one of the most conspicuous convention visitors. He is a son-in-law of "Jim" Hill of railroad fame, but insists he is able to make his own way without the connection, and wants it understood that he pays his own bills. He addressed the convention and told of his travels over the world, seeking road knowledge, and of the $100,000 which his road enthusiasm cost him last year.

"Our national government is spending millions, for which we have to pay, for the building of highways in the Philippines, Porto Rico and Cuba, and I think the people of Ohio are as good as any black tar-heel that ever trod the Philippine shores," declared Jesse Taylor of Jamestown, vice president of the Ohio Good Roads Federation, at the meeting. Mr. Taylor, speaking on "Systematic Plans in Road Building," urged that the state and federal governments aid the counties in road building and maintenance. He declared that millions are lost annually through methods that are not uniform, and that the power to build and improve roads should be taken from township trustees and supervisors and placed in competent charge. Mr. Taylor also declared that whenever a road is built in the country districts the owners of city property should bear a proportion of the cost.

THIRD DAY'S SESSION.

At the third day's session of the National Congress of Road Builders in the Arts Hall at the state fair grounds Commissioner Earle of Michigan said automobiles, taking them at the average of 30 horsepower to the machine, do as much damage to the road as 20 horses, because they pull away the dust particles and loosen the under surface, and that it is unfair for the farmer to assist in building roads unless the motorist also comes to the front. This latter, he said, they were doing, and he declared the revenue from state automobile registration will prove a godsend to the good roads movement. This revenue amounts to five times more than the regular appropriation made by the legislature for the improvement of roads. Mr. Earle urged the closest coöperation between the farmers and the automobilists.

"Farmers who sneeze at the automobile industry (which has come to stay) should be branded and sent to the Philippine Islands, where the United States government will build roads and where you don't have to pay taxes," continued Commissioner Earle.

Charles P. Light, state highway commissioner of West Virginia, in an address abounding in enthusiasm for the good roads cause, advocated the idea that the solution of the good roads problem rests with the farmer. He said in West Virginia the farmers "kick" against improving the roads, but pay their share of expenses at the finish, fearing that otherwise their farms may be seized.

LAST DAY'S SESSION.

The session of the last day was called to order at Memorial Hall by President MacDonald. Before proceeding to the regular business of the day, the question box, Commissioner MacDonald addressed the convention on "The Progress Made in Road Building in Connecticut."

Throughout the three days' meetings delegates had been dropping slips of paper with various questions written upon them into a box provided for that purpose. These were assigned to various delegates for andwer, and these answers and general discussions of the topics presented occupied the greater part of the two sessions on Friday.

Before adjourning the convention unanimously adopted resolutions declaring:

"That this convention hereby express its hearty endorsement of the principle of state aid in road improvement, as already adopted to meet the conditions in the various states now following it and earnestly recommends the extension and adoption of this principle in the other states at the earliest possible moment.

"That the president of the American Road Makers' Association appoint a committee of three members of the association to be delegates at large, to make all necessary arrangements for the attendance of delegates who shall be appointed to represent this association at the International Road Congress to be held at Brussels in July, 1910."

Sheboygan Plant Installs Crusher.

SHEBOYGAN FALLS, WIS., Nov. 16.—Extensive improvements have been made in the plant of the Falls Stone Quarry & Lime Kilns Co., by the new proprietors, who recently purchased the property of Peter Ingelse. The company has just completed the installation of a modern stone crushing plant. The elevator portion of the building resting on concrete walls is 30'x60' and 70' high, while that portion containing the crusher is about 30'x40'. The crusher is a Gates, and its capacity is 50 tons an hour. Electric power supplied by the Sheboygan Light, Power & Railway Co. is used. A 60 h. p. motor operates the crusher and a 30 h. p. motor operates the hoisting apparatus which conveys the cars from the quarry up into the building. Underneath the storage bins are two passageways, one for loading wagons and one for cars, a spur track running in from the C. & N. W. railroad.

The first car of crushed stone was shipped to Sheboygan Oct. 7. Peter Ingelse is superintendent of the plant.

Fined for Heavy Blasting.

HUNTINGTON, IND., Nov. 15.—Henry Keefer, owner of stone crushing plants in this city and at Logansport, has been found guilty in the Huntington circuit court of maintaining a nuisance by heavy blasting in a stone quarry at the western edge of the city. He was fined $10 in the mayor's court and appealed. In the circuit court his fine was fixed at $1 and costs, amounting to more than $150 assessed. Residents of the neighborhood allege the blasts were so heavy that cisterns were cracked and falling stone broke through roofs and otherwise damaged property.

Install a New Hoist.

UPPER SANDUSKY, O., Nov. 15.—The Natural Lime & Stone Co. has recently installed a new hoist at its plant for pulling the cars of stone up into the crusher house. The new cars that are used with the hoist have a capacity of five tons of stone.

Stone Plant to be Rebuilt.

LITTLE FALLS, N. Y., Nov. 8.—The crusher plant and stone bins of the John Pierce Stone Co. were destroyed by fire on Sunday morning. The fire broke out apparently from crossed wires. The loss is from $100,000 to $150,000, and it is only partly covered by insurance. Supt. Thomlinson says the big crushing plant will be rebuilt immediately and has gone to New York to confer with other members of the company.

Stone Used in Making Paper.

TROY, N. Y., Nov. 19.—The West Virginia Paper & Pulp Co., of Mechanicsville, N. Y., which has been quarrying stone at North Pownal for several months, has found it suitable for use in the manufacture of paper and has purchased the land where the quarry is located.

Bluestone Quarries Shut Down.

CONNELLSVILLE, PA., Nov. 16.—After supplying ballast to the Baltimore & Ohio railroad for the past sixteen years the Standard Lime & Stone Co. has shut down its quarries at Bluestone and some of the employees will go to Martinsburg, W. Va.

Caparis Brothers, of Columbus, Ohio, have secured the contract for furnishing ballast. This stone will come from Martinsburg. The Bluestone quarries will resume on a commercial basis next spring.

New Stone Company Purchases Property.

LIMA, O., Nov. 17.—The Lime Stone Company, recently incorporated under the laws of Ohio, with a capitalization of $50,000, has purchased the properties of the Klinger Stone Company, for a consideration of $28,000.

The Klinger plant, while not one of the largest, is one of the most complete in the state, and is a paying proposition.

Crusher Destroyed By Fire.

Fire of an unknown origin completely destroyed the No. 8 crusher plant of the Sioto Stone Co. at Columbus, O., recently. The loss on the crusher is placed at about $20,000. There were two crushers at the quarries and the company will not have to close down because of the fire.

The Elmo Rock Company, Elmo, Tex., has been incorporated with a capital stock of $10,500 to establish a rock crushing plant. They will install machinery and erect an office building. T. B. Griffith, president; L. W. Wells, vice-president; J. D. Whitfield, secretary, all of Terrell, Tex.

The Haverstraw Crushed Stone Company, Morristown, N. J., has been incorporated with a capital stock of $125,000, by Frederick W. Schmidt, I. W. Wortman and E. A. Quayle.

The Oklahoma Crushed Rock Co., of Muskogee, Okla., has incorporated. Capital, $100,000. Incorporators, Joseph Brotherton and Carl Purcell.

The Muskogee Crushed Stone Co., of Oklahoma City, Ok., has filed amended articles of incorporation increasing its capital stock from $10,000 to $15,000.

The Dutchess County Lime Co., of Dover Plains, N. Y., has been incorporated for $25,000. The incorporators are Paul M. Dierson, Ossining, N. Y., and Henry C. Griffin, of Tarrytown.

The Groveport Pressed Stone Company, Groveport, O., has been incorporated with a capital stock of $10,000 by J. C. Bower and others.

The Aikin Reinforced Concrete Company, Los Angeles, Cal., has been incorporated with a capital stock of $100,000, by Perry W. Weidner and Parley A. Lord, Los Angeles, and Fred H. Sears, Chicago.

The Artificial Building Stone Company, Rochester, N. Y., has been incorporated with a capital stock of $23,000, to manufacture concrete blocks, etc., by Alexander Otis, N. J. Weldgen and Charles S. Thurston, Rochester.

Lime

National Lime Manufacturers' Association

Meets Semi-Annually.

OFFICERS.

William E. Carson, Riverton, Va.....President
Charles Weiler, Milwaukee, Wis.....1st Vice-Pres.
Walter S. Sheldon, Hamburg, N. J.....2nd Vice-Pres.
M. H. Deely, Pittsfield, Mass.....3rd Vice-Pres.
C. W. S. Cobb, St. Louis, Mo.....Treasurer

EXECUTIVE COMMITTEE.

William E. Carson, ex-officio; Chas. Warner, Wilmington, Del.; T. E. Fleischer, Sheboygan, Wis.

Now Turn Out, You Lime Men.

President W. E. Carson, of the National Lime Manufacturers' Association, makes the following characteristic appeal to lime men to attend the annual meeting of the association, which is to be held in Pittsburg in February:

To the Lime Manufacturers of the U. S.—Greeting: Now that another year is drawing to a close and the dividend period is on us, the question arises, what have we to say to our stockholders? Have we got to apologize for our year's work, or can we romp in like two-year-olds with pockets bulging with dividends and an armful of "musts" for next year's improvements? Do we belong to the sheep or the goats?

When times are good and prices like the goose "hang high," it is no trouble through the brute force of conditions to show earnings, but when a period, such as we have been through in the last few years, comes along it is the skillful manager who has put his house in order that can sail through on an even keel.

There are several ways of putting your house in order. One of them is to take a leaf out of Peter Martin's book, and organize, organize, organize, get every plant in your territory to keep in step and sustain prices. The other is to whip your plants into a very high state of efficiency as has A. A. Stephens, or to combine both of these plans as does Charles Warner.

How do they do it? By getting out and mixing with the bunch, and you will find all three of them are master hands at giving a jolly, an argument, or advice, and all three of them are superlatively successful.

The amount of information that any of us can personally dig up could be easily carried in our waist-coat pocket, and even then the chances are it would be incorrect.

But you are wondering why all this talk about potent facts. Simply this: the National Lime Manufacturers annual meeting will be held in Pittsburg in February, and you are invited to attend. If you come you will be benefited, as we are going to have the best lot of papers ever presented. If you don't, why you to the rut. Enough said. W. E. CARSON.

Capacity of 500 Barrels A Day.

BELLINGHAM, WASH., Nov. 17.—The International Lime Co. has started the construction of a lime plant near Kendall, twenty miles from Bellingham, which when completed will have a capacity of 500 barrels a day. Considerable machinery has been shipped to the site of the plant. The promoters maintain secrecy regarding the financial backing of the concern but it is said to be promoted by Seattle capitalists.

Lime as an Alfalfa Fertilizer.

The New York experiment station at Geneva has published the results of its work in treating alfalfa plants with lime. The results are most gratifying, the yield being very materially increased. About 1,500 pounds of lime to the acre was used.

Increasing Stone and Lime Output.

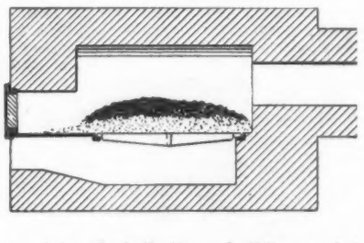
CUMBERLAND, MD., Nov. 18.—The Cumberland Cement Co., of this city, anticipates increasing its crushed stone output to four carloads per day and will also be in position to deliver that quantity in time for the early spring business. It is also contemplating increasing its lime output, going into the manufacture of a high grade building lime, which will mean the opening up of lime veins on its valley road property.

Fowler & Pay, of Mankato, Minn., have just completed the construction of a lime kiln at Le Roy which has a capacity of 220 barrels a day.

GAS FIRING FOR LIME KILNS.

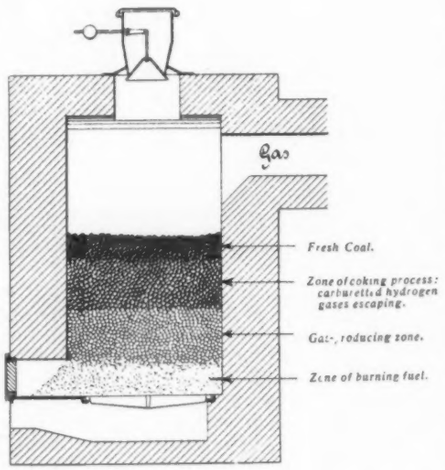
By Ernest Schmatolla.
Metallurgical and Chemical Engineer.

In most cases the difference in construction between a gas producer and an ordinary furnace or fire-box is very small, and in many cases a fire-box can be converted into a producer without much trouble.



The points of similarity and difference between an ordinary fire-box and a producer are readily seen by comparing the two illustrations, in which the upper one represents an ordinary grate and the lower one a producer.

The ordinary fire-box consists of a brickwork chamber divided into two parts by means of an iron grate, the upper portion forming the combustion chamber and the other the ashpit. At the front of the combustion chamber is a door through which the fuel is fed on to the grate and at the opposite end is the "bridge" or back of the fire-box, which has an opening direct into the flues, through which the hot gases and flames are carried to where they are required for heating purposes.



In this arrangement the firing is so arranged that the stoker feeds in fresh supplies of fuel at frequent intervals—say, every quarter of an hour—the new coal being laid on top of the glowing mass in the fire-box and the ash being forced through the spaces in the grate from time to time. The sudden heat to which the fresh coal is subjected on entering the fire-box causes a rapid evolution of gas and smoke, which cannot be supplied with sufficient air for its complete combustion. Consequently there is a large waste of unburnt fuel escaping up the chimney in the form of smoke. This means a direct financial loss.

A glance at the illustration of the producer shows that it resembles the ordinary fire-box in consisting of a brickwork chamber divided into two portions by a grate, but the chamber is much deeper in proportion than in the former case. In consequence of this is is possible to have a much greater depth of fuel—about a yard as compared with 8 to 10 inches. Instead of a door at the front or side of the chamber, a special air-tight opening is provided in the top of the producer.

The reactions which occur in the producer are, roughly, as follows: The oxygen of the air entering through the grate of the producer combines with the carbon of the fuel and produces a certain amount of heat. This heat distributes itself amongst the higher layers of fuel and raises their temperature almost to red heat. These upper layers cannot burn, however, as the oxygen of the air which entered through the grate has been used immediately over the grate, but the hot coal acts upon the carbon dioxide produced by the fuel which has already been burned, and forms carbon monoxide which, as is well known, is a combustible gas. This gas rises through the fuel to the upper part of the producer and in its passage partly volatilizes some of the tarry and gaseous matter in the coal, forming a gas rich in hydrocarbon gases as well as in carbon monoxide.

In consequence of passing through so large an amount of fuel the gas becomes cooled to a certain extent so that the fuel freshly fed into the producer does not become suddenly heated as in the ordinary fire-box, but is gradually warmed, and so gives up its more volatile constituents in a regular manner instead of in sudden evolutions. Consequently all production of smoke is avoided and the fuel is completely gasified before being burnt. Further than this, its much more regular composition as it issues from the producer than when it proceeds from the ordinary fire-box makes it much easier to admit the proper proportion of air for its most effective combustion, with the result that not only is the combustion more complete, but the heat regulation is under far more perfect control than when an ordinary fire-box is used.

Further details of the reactions which take place inside a gas producer will be found described in the author's book "Gaserzueger und Gasfeuerungen," to be obtained from 317 High Holborn, London, W. C., for 8s.

Comparison I.—Boiler Firing.

In order to produce a given heat effect the gas must be burned. To effect this a certain proportion of air is necessary, the exact quantity depending on the composition of the gas itself and on the manner in which it is to be burned. In order to distinguish the air so supplied from that which enters through the grate of the producer, this latter is called the "primary" air, whilst that used for mixing with the gas is known as the "secondary" air supply. Combustion is greatly facilitated by the use of hot secondary air and it is always wise to arrange for the heating of the air before it is mixed with the gas, particularly when very high temperatures are to be obtained.

It is important that all possibility of explosion shall be avoided when this gas-air mixture is set on fire, and it is particularly necessary to ensure that certain mixtures of gas and air shall not be produced. With a well-designed plant such dangers are easily avoided and gas-firing rendered as simple and safe as the ordinary use of solid fuel.

For perfect combustion it is necessary that the gas and air currents should be properly introduced to each other, as upon this depends the nature of the flame produced. Thus a rapid and concentrated combustion takes place when the air is introduced into the stream of gas at right angles to the latter.

Sometimes the gas and air meet in an opposite direction. This arrangement gives a better mixture, as the air is relatively heavier than the gas, and more rapid combustion is thereby produced than when they travel in the same direction.

When the streams of gas and air enter the combustion chamber parallel to each other a long flame is produced.

A very short and concentrated flame is produced when the gas and air streams are arranged at a sharp angle so that they converge and meet at a point. This produces a more rapid mixture than when the two streams are parallel, and when the air is supplied above the gas a more rapid and short combustion and flame is produced than when the contents of the flues are reversed. This is due to the difference in the specific gravities of the gas and air.

In a somewhat different arrangement the air is supplied in the form of a thin sheet and the gas is blown through it and drags with it a cone of air. This produces an excellent flame and a rapid combustion. A modification of this arrangement, in which a stop is placed in front of the gas stream so as to force it and the air stream to cross each other, has also proved satisfactory.

How Gas and Air Are Mixed and Fired.

In order to show the great advantages to be derived from the use of producer gas, a short compari-

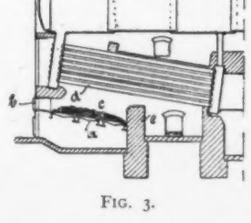


FIG. 3.

son in the case of a boiler may be made. Fig. 3 represents an ordinary water-tube boiler, and a little consideration of the subject will show that the water-tubes (*d*) must exercise a much greater cooling effect on the partially burnt gases than the fire-brick arch of the combustion chamber of an ordinary boiler. Consequently there is a far greater loss of heat owing to the water-tubes becoming covered with soot, and a complete combustion of the fuel is almost impossible. In order to produce proper combustion without smoke in such an apparatus a stoker of more than ordinary ability must be engaged, and he must work with unusual vigor, because he can only feed in such small quantities of fuel at a time and must be so frequently opening the furnace doors for this and for cleaning the grate that a large amount of unnecessary air enters the combustion chamber and causes waste of fuel in the heat expended on it to no real purpose. Not only so, but in spite of all the care which the stoker may take, some parts of the fuel will burn out more rapidly than others, leaving a portion of the grate uncovered. This admits a further supply of unnecessary air and causes an additional waste of fuel. In short the amount of fuel used may easily be 25% more than is really necessary.

Diagram 4 represents the same boiler altered so as to be fired by means of a producer. The arrangement shown is one which the author has found entirely satisfactory in his own practice. The intermediate illustration ((Fig. 5) is a section on the line *x x* and shows the combustion chamber which is used to replace the fire-box and grate ordinarily used.

The gas-producer (*G*) can be placed at any convenient distance from the boiler or may be arranged quite close to it. If a battery of boilers is in use the generators can be built so as to supply the whole series. The gas produced first enters a flue (*h*) which connects to the gas-distributing pipes (*a*) and is controlled by a damper (*v*). From these pipes the gas enters the combustion chamber (*b*), the supply of gas being under perfect control. In the combustion chamber the gas becomes mixed with air entering it from the flues *l'*, *l'*, and becomes ignited. The flame passes upwards through the openings marked *c* and strikes against a baffle which turns it downwards and horizontally before it reaches the water-tubes of the boiler. In this way the hot gases and flame must pass through the equivalent of two chambers before coming into contact with the water-tubes. This, the author has found, ensures full and complete combustion. A loss of heat by radiation is prevented by the construction of the air-flues (*l*) because such radiated heat is used to warm the incoming air. The brickwork therefore remains so cool on the outside of the flues that a man can bear his hand on it for an indefinite length of time.

The producer (*G*) is so constructed that it is only necessary to feed it occasionally, as a large supply of coal can be shot into the neck (*g*) and allowed to burn very low before a fresh charge is needed. In this way the excess of air which is the necessary accompaniment of frequent feeding as in an ordinary fire-box, is avoided and the waste of fuel thus caused is prevented. The quantity of fuel the producer can contain is sufficiently large to render a complete burning out of the fire practically impossible with ordinary care, as it will last for many hours without attention. It is also obvious that by the use of a producer of this type much of the skill required in firing an ordinary boiler is unnecessary and labor troubles are thereby greatly reduced, as the removal of the ash and clinker is an extremely simple matter and the feeding of the producer merely consists in emptying a barrowful of coal into the hopper at state intervals.

For inferior fuel or for waste products a couple of producers can be connected to the same boiler and the cost of heating reduced accordingly where these cheaper materials are available.

Other constructions of producer and boilers will be found in the author's larger treatise on "Gas-Firing."

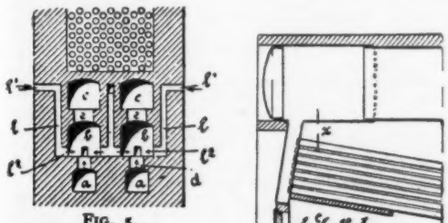


FIG. 5.

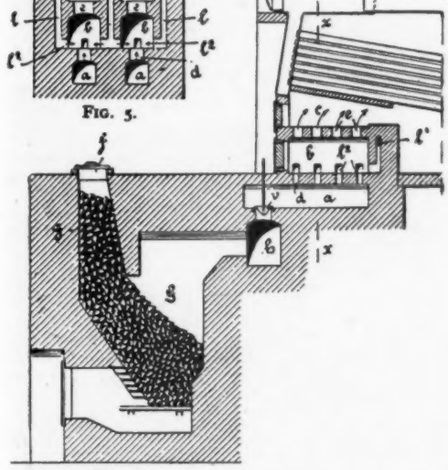


FIG. 4.

Comparison II.—Lime-Kiln Firing.

The advantages to be derived from the substitution of gas-firing for the direct use of coal are particularly great in the lime industry.

The ordinary kiln employed in lime-burning, and in the production of calcined magnesite, cement, plaster of Paris, clay, grog, etc., is represented by Fig. 6, which should be compared with Fig. 12, which shows a similar kiln adapted to the use of producer gas. This adaptation is easily carried out and in more than one case the author has found that for a series of kilns altered in this way a saving in fuel of fully 25% is readily obtained, and the resultant product is superior in quality, owing to the more even temperature at which it is treated and the entire absence of ash in the kiln itself.

The coal-fired kiln shown in Fig. 6 consists chiefly of an upright shaft with a feeding hole at the top and a number of draw-holes—normally closed by doors—at the bottom. The fuel is fed into three of four grates placed a couple of yards above the draw-holes (*d, d,*). Consequently they possess the same disabilities as an ordinary boiler fire, and owing to their position in the kiln the brickwork is rapidly burnt out and has to be renewed at considerable expense. A further loss of heat occurs through the way in which the stoking must necessarily be carried out and by radiation from the fuel and walls of the fire-boxes.

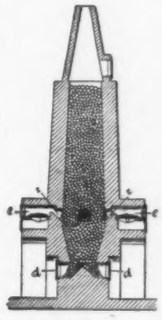


FIG. 6.

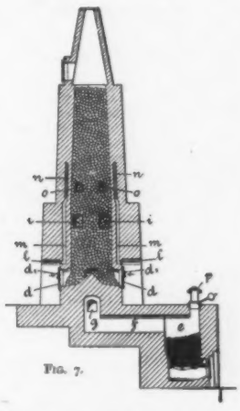


FIG. 7.

The flame passes into the shaft through the passages marked *i. i.* in Fig. 6, and is of very small area. In consequence of this it is very searching and exerts an enormous influence on the stonework forming the passages and the lime or other material is overburnt at this part of the kiln, whilst a long time is required before the center of the shaft reaches the maximum temperature. The result is a loss of heat expended on part of the product and a strong tendency to unevenness of composition in the material drawn from the kiln.

Another disadvantage of the ordinary coal-fired kiln is due to the loss of heat caused by admitting an excess of air, so that immediately after drawing out any lime the openings through which it has been removed must be carefully luted up. Consequently there is no chance of cooling the materials and the loss from this cause alone is considerable, to say nothing of the difficulty of handling such hot material. The durability of the kiln is also reduced because of the strong draught with which it is necessary to work when direct firing is employed.

The ash problem is one which confronts almost all lime manufacturers who use direct firing, as even when the fire-boxes are external to the kiln the amount of ash drawn in with the flame is annoyingly large, and when the fuel and limestone are fed in alternately the product can never be considered to be of first-class quality.

All these disadvantages, and others, are removed when the kiln is adapted so as to burn producer gas, as a study of such converted kiln (Fig. 7) will show. In this the gas-producer (*e*) which is fed through the air-tight hopper (*p*) is situated below the level of the kiln proper. The gas travels first through the flue and then divides into a number of streams by passing into the smaller flues (*g*) only one of which is shown, and is carried upwards to the openings *i, i.*

Producer gas is lighter than air and so rises up through the kiln under a slight pressure in consequence of which it distributes itself evenly throughout the material to be calcined.

The openings *d', d',* in the doors over the draw-holes (*d, d,*) serve to admit air in any desired quantity and by passing this air through the burnt material before allowing it to mix with the gas it becomes heated, cooling the material at the same time, and facilitates the burning. As the air becomes hotter it also becomes lighter and thus, like the gas, reaches the center of the shaft under a slight pressure. This is important, as it prevents the drawing in of air through any chance leaks in the kiln and so prevents any risk of loss of fuel by excess of air.

The gas and air burn where they meet, but should any gas escape unburnt owing to an insufficient supply of air, it is completely fired by an additional supply of air which enters the walls of the kiln at *l, l,* and rising between them through the flues *n, n,* enters the shaft through the openings *o, o.*

This secondary air-supply is of great importance, as it keeps the walls of the kiln cool and saves premature destruction through a great difference between internal and external temperature. An additional secondary air-supply can also be arranged for the lower part of the kiln, but, for the sake of simplicity, this is not shown in Fig. 7.

The stone below the admission ports of the gas is cooled automatically by the air entering through the openings *d, d,* and is drawn out in practically a cold condition, thus being much easier to handle.

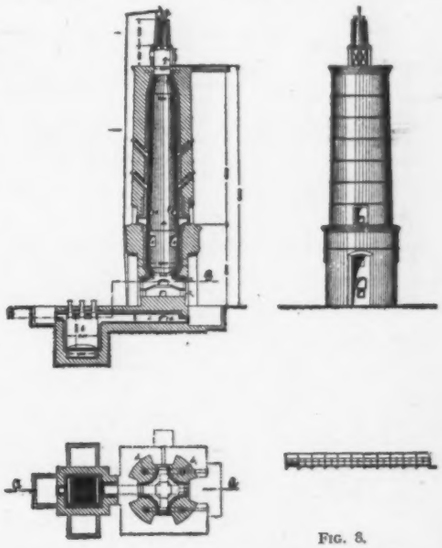


FIG. 8.

It will thus be seen that the utilization of the heat is practically perfect and far superior to anything possible with direct-fired kilns.

When a new kiln is being erected Fig. 8 is more suitable and convenient, as, instead of constructing the producer in the ground, the whole kiln is placed on a pedestal into the sides of which the generators are built. It is then easy to construct an additional set of doors at the bottom of the shaft, so that the powdered lime can be drawn from these whilst the lump is withdrawn from the side holes, or the pedestal can be constructed to serve as a convenient storage for lime. This pedestal construction has also the advantage that it enables the side draw-holes to be sufficiently high for the lime to be placed direct into railway trucks or carts.

The number of gas-producers required depends on the size and output of the kiln. For an output of 15 tons per day a single generator is sufficient, but for the production of 30 to 40 tons daily two producers should be attached to each kiln.

In a number of cases in which gas-fired kilns worked on the foregoing principle are at work the records show that whilst the kilns when direct fired used 4 tons of coal to every 10 tons of lime produced, or 30 to 40 per cent of the material obtained, yet after conversion into gas-fired kilns they only require 15 to 20 per cent.

Comparison III.—Reverberatory Furnaces.

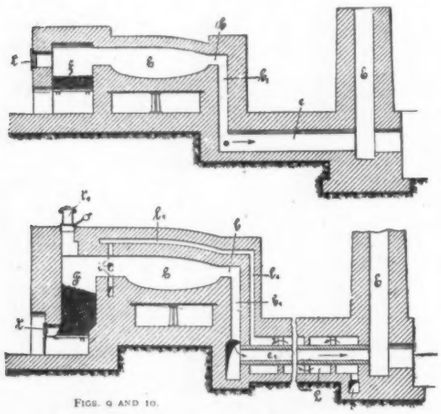
The loss of heat which occurs when a reverberatory or hearth furnace is heated directly with coal is very

great, as will be seen by a comparison of Figs. 9 and 10.

The former shows a furnace heated with coal fed on to an ordinary fire-box provided with a grate (*f*). The heat travels over the bridge to the hearth (*h*), heating the material to 1,000 C. or above and passing away through the flue to the chimney (*E*). The proportion of fuel used depends on the size and construction of the furnace, but by conversion of a moderately large furnace into a gas-fired one a saving of at least 30 to 50 per cent can be effected.

The chief alterations required are the lowering of the grate to the position shown in Fig. 10 and the reconstruction of the fire-box so as to make it into a producer which is fed through the hopper *t*, at the top instead of through the side door *t*, as in Fig. 9. On the furnace itself a recuperator must be constructed between the hearth and the chimney.

This recuperator (or heat generator) consists of a system of firebrick flues (*e*) which connect the space



FIGS. 9 AND 10.

over the hearth with the chimney. These flues are surrounded by a larger flue (*L*) into which the air necessary for the combustion of the gas is introduced through the opening *l*. The directions of these air and gas currents are shown by the arrows, and as will be seen, the incoming air is heated by the outgoing gases, so that it is quite hot when it enters the combustion chamber through the openings *i*, which extend right across the whole width of the furnace, and the heat lost in the old direct-fired furnace to the chimney is returned to the furnace. By thus mixing hot producer gas with the very hot air drawn through the flues *l*, over the hearth, a particularly perfect combustion is obtained without either excess of air or the difficulties in working due to the production of a reducing flame. Consequently the production of smoke is avoided and a considerable saving in fuel is effected. This economy is chiefly due to the high temperature at which the air is supplied by the use of a recuperator, to the arrangement of the gas-producer which enables the air and gas supply to be regulated to suit the fuel, to the more perfect combustion and to the lessened radiation from the walls and roof of the furnace, and to the regeneration of the heat in the recuperator.

In addition to the economy in fuel, the greater "life" of the furnace itself is of the greates importance, as there is no cutting of the brickwork by dust particles as when direct firing is employed.

One great advantage resulting from the employment of a system of recuperation such as that just illustrated is the much higher temperatures which can be obtained by its means.

Kilns.

For the most efficient working, kilns with recuperators should either work continuously or the same recuperators may be connected to two or more kilns as otherwise much of the heat saved is again lost.

In an ordinary gas-fired kiln the temperature is limited by the fact that in the long gas channels through which the gas is conveyed from the generator to the chamber to be heated, it is cooled, and enters almost in a cold state; also the quantity of heat that is accumulated in the previous chambers is limited, so that after a certain time the air also enters at a lower temperature.

This is amended by a kiln which the author has constructed for very high temperatures, in which air and gas both enter into the gas chamber at a very high temperature, which can be increased at any time required. This kiln is based on the Siemens principle, by which the highest temperatures are most economically obtained, viz., by the aid of heat regeneration, and consists chiefly in the connection of the heating chamber (*a*) (Fig. 11) with two or more

(Continued on page 50.)

Lime Production in 1908.

Statistics compiled by the U. S. Geological Survey on lime are being distributed. The booklet contains the figures on the consumption of the product and the uses to which it is put, as compiled by A. T. Coons, as follows:

As with most other industries in 1908, the lime production decreased in both quantity and value of output. In 1907 shut downs in the latter part of the year reduced the total gain in value over the output of 1906 to a relatively small sum, while the tonnage produced showed a slight decrease. In 1908 many of the plants remained closed during the entire year and some plants ran but part of the time or with diminshed force.

The total lime production of 1908 amounted to 2,766,873 short tons, valued at $11,091,186. These figures, compared with an output of 3,092,524 short tons, valued at $12,656,705, in 1907, show a decrease for 1908 of 325,651 short tons in quantity and of $1,565,519 in value. The average price per ton was $4.01 in 1908 and $4.09 in 1907.

Pennsylvania ranked first, both in quantity and in value of output, showing 21 per cent of the quantity and 16 per cent of the total value of lime manufactured in 1908. Notwithstanding the increased number of producers in Pennsylvania in 1908, there was a decrease in both quantity and value of output. Ohio, Wisconsin, Missouri and Maine followed in rank of production.

In 1907 there were 43 states reporting a lime output in 1908, 42 states. In 1908, 16 states reported an increased value of output, and 26 a decreased value.

The following table gives the value of the total lime production in the United States for the years 1897 to 1908, inclusive:

1897	$6,390,487	1903	$ 9,255,882
1898	6,886,549	1904	9,951,456
1899	6,983,067	1905	10,941,680
1900	6,797,496	1906	12,480,653
1901	8,204,054	1907	12,656,705
1902	9,335,618	1908	11,091,186

Uses of the Lime Produced.

In the following table the total lime production of 1907 and 1908 is classified according to the uses to which the product was put, as reported by the burners. Although this table is necessarily faulty on account of much of the product being handled by dealers or middlemen, which renders the manufacturers uncertain as to what use was made of their product, it is of interest as showing a comparative table of sales for the two years. The same manufacturer, as a rule, classifies his output the same each year.

Fuels Used in Burning Glime.

With regard to the following table, which shows the fuels used in burning lime, it must be remembered that only about two-thirds of the producers report the quantity of fuel used by them; and although the burners not included in this report are, in general, the small operators, notably in Maryland, Pennsylvania and West Virginia, some of the larger firms have not as yet given satisfactory information on this subject.

The total quantity of the various kinds of fuel consumed in the domestic lime industry during 1907 and 1908 was, therefore, as follows:

	1907.	1908.
Wood, cords	409,674	409,805
Shavings, short tons	14,599	5,800
Coal, do	646,885	397,620
Coke, do	4,406	5,268
Gas, cubic feet	356,323,000	430,051,512
Oil, barrels	26,374	23,884

Hydrated Lime.

Lime-hydrating plants reported as in operation during 1906, 1907 and 1908 are classified by states in the following table. The output of hydrated lime reported was 120,357 short tons, valued at $479,079, in 1906; 140,135 short tons, valued at $657,636, in 1907; and 136,441 short tons, valued at $548,262, in 1908. The average price per ton was $3.98 in 1906, $4.69 in 1907 and $4.02 in 1908. Notwithstanding the decreased production for 1908, compared with 1907, there were more manufacturers reporting hydrating plants than in 1906 or 1907. Hydrated lime is used for all purposes, but these figures are collected to show the development of this comparatively recent industry.

Imports and Exports.

Imports of lime for consumption in the United States in 1908 were 5,060 short tons, valued at $28,952, as against 15,388 short tons, valued at $86,304, in 1907, a decrease of 10,328 short tons in quantity and of $57,352 in value in 1908.

No lime was reported as exported in 1908. In 1907 the exports were valued at $90,379.

Production of lime in the United States in 1908, by uses, in short tons.

	Quantity.	Value.		Quantity.	Value.
Building lime	1,580,590	$7,000,904	Fertilizer	339,287	$927,827
Hydrated lime	136,441	548,262	Dealers—uses not specified	307,050	1,100,129
Alkali works	46,384	203,658	Other purposes[a]	67,232	268,153
Chemical works	73,119	259,190		2,766,873	11,091,186
Paper mills	109,831	540,559			
Sugar factories	24,255	149,631			
Tanneries	22,684	92,873			

[a] Includes lime for sand-lime brick, slag cement, steel works, glass works, smelters, sheep dipping, manufacture of soap, cyanide plants, glue factories, etc.

Quantity and value of lime burned in the United States in 1908, by States in short tons.

Rank of State.	State.	Quantity.	Value.	Average price per ton.	Number of operators.
11	Alabama	83,411	$335,234	$4.02	13
26	Arizona	10,819	68,635	6.33	3
22	Arkansas	27,179	122,290	4.50	9
6	California	70,913	581,481	8.20	17
35	Colorado	5,615	28,179	5.02	3
12	Connecticut	62,070	307,895	4.96	3
28	Florida	11,822	62,915	5.32	6
30	Georgia	11,193	46,780	4.18	6
29	Idaho	7,373	57,020	7.73	5
10	Illinois	92,549	393,951	4.26	18
13	Indiana	95,988	293,579	3.06	12
24	Iowa	18,900	79,400	4.03	6
41	Kansas	1,558	8,086	5.19	4
37	Kentucky	6,206	21,322	3.44	8
5	Maine	141,934	661,453	4.66	6
14	Maryland	103,224	292,623	2.83	41
7	Massachusetts	107,813	566,022	5.25	10
15	Michigan	68,050	282,023	4.14	10
23	Minnesota	19,800	85,700	4.33	4
4	Missouri	167,060	701,321	4.20	28
32	Montana	5,121	32,981	6.44	6
21	New Jersey	32,700	134,722	4.12	21
8	New York	106,025	529,501	4.99	36
36	North Carolina	5,132	24,750	4.82	5
2	Ohio	279,080	975,061	3.50	34
34	Oregon	3,274	28,795	8.80	8
1	Pennsylvania	582,352	1,883,496	3.23	443
31	South Dakota	5,254	34,068	6.48	5
17	Tennessee	73,016	226,463	3.10	17
20	Texas	33,725	144,118	4.24	6
25	Utah	12,237	78,346	6.40	11
19	Vermont	32,691	170,205	5.21	10
9	Virginia	107,209	424,374	3.96	29
16	Washington	32,343	228,353	7.06	9
18	West Virginia	91,747	202,664	2.21	41
3	Wisconsin	235,538	831,792	3.53	44
42	Wyoming	392	4,246	10.83	4
27	Hawaii	15,560	140,742	15.00 13.00 6.43 7.11 5.17	6
39	Nevada				
40	New Mexico				
38	Rhode Island				
33	South Carolina				
		2,766,873	11,091,186	4.01	949

Fuel used in lime burning in 1908, with value and number of plants using each type.

Wood	cords	325,943	638,092	194
Coal	short tons	295,333	871,490	413
Coke	do	5,118	29,018	8
Oil	barrels	23,804	15,269	8
Gas	cubic feet	288,385,512	110,738	12
Mixed fuels:				
Wood	cords	77,957	449,837	78
Coal	short tons	97,287		
Coal and coke	do	9,157	35,700	6
Coal	do	5,000	30,130	2
Gas	cubic feet	141,666,000		
Oil and wood, wood and coke, blocks, sawdust, shavings			29,993	5
			2,210,267	724
Unreported			556,606	225
			2,766,873	949

Number of lime-hydrating plants in operation in 1906, 1907, and 1908, by States.

State.	1906.	1907.	1908.	State.	1906.	1907.	1908.
Alabama	1	1	1	Michigan	1	1	2
Arizona	1	1	1	Missouri		2	2
California		1	2	New Jersey			1
Colorado		1		New York	1	2	2
Connecticut	1			Ohio	8	9	11
Florida			1	Pennsylvania	8	6	11
Georgia	2	1	1	Tennessee			1
Illinois		1	1	Texas			1
Indiana	2	2	2	Virginia			1
Iowa	1			West Virginia	1	1	1
Kansas	1	1		Wisconsin	1	2	2
Maine	1	1	1				
Maryland			1	Total	30	33	46

THE MARYLAND PORTLAND CEMENT CO.

has been consolidated with several other properties under the corporate name and title of

SECURITY CEMENT & LIME CO.

Improvements and additional equipment to the consolidated plants will materially increase present output of **SECURITY Portland Cement,** and enable the new company to manufacture the highest grade lime in all its forms, fluxing stone, pulverized limestone and crushed limestone for all purposes.

The main offices of the company remain

8th floor Equitable Bldg., BALTIMORE

"OK" QUALITY

"OK" Cement is ground 85% fine on the 200 mesh sieve — and contains 10% or 38 lbs. more actual cement than the coarser ground cements — OK Cement will carry one third more sand than other brands—It is the highest possible grade and guaranteed in every particular and to meet all requirements of the U. S. Army and American Society for Testing Materials.

Oklahoma Portland Cement Co.

Ada, Oklahoma

The Production of

UNIVERSAL

PORTLAND CEMENT

Year.	Output of Universal Portland Cement-bbls.	Percentage of total American output of Portland Cement.
1900	32,000	0.38%
1901	164,000	1.29%
1902	319,000	1.85%
1903	463,000	2.08%
1904	473,000	1.78%
1905	1,735,000	4.92%
1906	2,076,000	4.55%
1907	2,129,000	4.36%
1908	4,535,000	8.89%
1909	*6,000,000	

*Estimated.

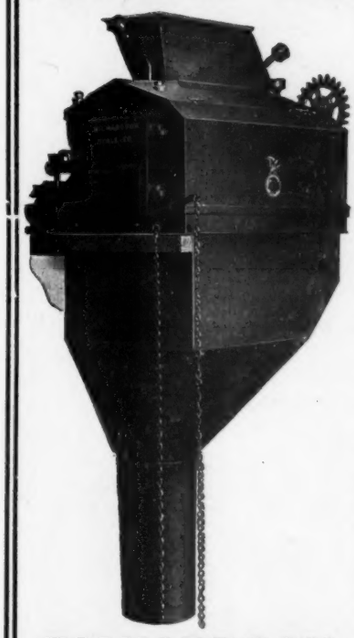
Additional capacity now under construction will give us an output of 8,000,000 barrels for 1910.

UNIVERSAL

Portland Cement Company

CHICAGO - - PITTSBURG

Automatic Cement Bagging



The Richardson Automatic Bagger weighs 5 to 6 bags of Cement per minute with a guaranteed accuracy of within one-half pound per bag.

Simple, Practically Dustless.

No expense beyond initial outlay.

With this machine you don't give away cement in overweights, nor get complaints from contractors for short weights.

Average weight put in bag, exactly 95 lbs.

RICHARDSON SCALE CO.,

7-8 Park Row, NEW YORK,

122 Monroe St., CHICAGO.

The BATES VALVE BAG

The strongest and most perfect package for shipping and storing cement

Economical packing and smallest percentage of breakage

IT IS WATER PROOF!

The West Jersey Bag Co.

Front and Elm Streets **CAMDEN, N. J.**

Where strength and permanency are required there can be no mistake in specifying

UTICA HYDRAULIC CEMENT

It has stood the test of time, and will endure for centuries.

Utica Cement is always uniform, being a natural product, its chemical combination never changes.

There is Only One "Best" Bricklaying Mortar

Durability is a quality in building materials that must be considered, and the well tried excellence of all the masonry work that has employed Utica Hydraulic Cement for the mortar are positive witnesses that bespeak continued patronage for the only goods that is backed by the record of past achivements.

Utica Hydraulic Cement is a perfect natural product that never changes or deteriorates. No other cement can demonstrate equal quality and comparison of cost.

For Concrete Foundation Utica Hydraulic Cement makes the hardest and toughest natural stone that has ever been used. No other cement can point to any comparable record of excellence. For references, ask the people who wrecked the old Cook County Courthouse.

Builders supply men should never be without an ample stock of Utica Hydraulic Cement.

WE GUARANTEE EVERY BAG AND EVERY BARREL.

Utica Hydraulic Cement Co.

UTICA, ILLINOIS

WAREHOUSES OF M. E. SMITH CO., OMAHA, NEBRASKA. (8,000 Barrels Utica Cement.)
AUDITORIUM HOTEL, CHICAGO, ILLINOIS. (19,000 Barrels Utica Cement.)
FACTORIES OF LIGGETT & MYERS, ST. LOUIS, MISSOURI. (40,000 Barrels Utica Cement.)

These world famous structures built with Utica Cement exclusively for brick and stone laying mortar.

Kosmos Portland Cement Co.

RELIABILITY

COLOR

STRENGTH

WAR DEPARTMENT
ENGINEER OFFICE, UNITED STATES ARMY.

Nashville, Tenn., February 20, 1909.

KOSMOS PORTLAND CEMENT COMPANY,
Louisville, Ky.

Dear Sirs:—Replying to yours of the 12th instant, I beg to advise you that our records show that 22,250 barrels of Kosmos cement were received at Hales Bar, Tennessee River, for the lock under construction at that point, between June 23 and September 25, 1908. All of this material was tested and all of it accepted under the requirements of the Engineer Department specifications.

Very respectfully,
WM. W. HARTS,
Major, Corps of Engineers

A Destructive Fire Prevented the Completion of the 100,000 Barrel Contract. The Rebuilt Mill is Fire-Proof.

It is universally recognized that no tests are more exacting than those of the War Department. A record of uniform acceptance, such as the above, is the best assurance to the purchaser of the unvarying quality of **KOSMOS** *cement. It is a* **FACT***—more convincing than any amount of* **TALK.**

MILL:
Kosmosdale,
Kentucky

SALES OFFICE:
Paul Jones Building,
Louisville

ASK FOR QUOTATIONS

Kosmos Portland Cement Co.

The Ironton Portland Cement Co.

Manufacturers of the

Celebrated Limestone Brand of Portland Cement

Used by the Railroads in Kentucky, Ohio, West Virginia, and Virginia during the past five years.

Cement as finely ground as any on the market.

Guaranteed to pass all the standard specifications.

Plant located at Ironton, O., within easy access to seven States, namely, Ohio, Indiana, Kentucky, West Virginia, Virginia, Tennessee and North Carolina.

Shipments via the N. & W. Ry., C. & O. Ry., C. H. & D. Ry., D. T. & I. Ry. or Ohio River. **Write for Prices**

The Ironton Portland Cement Co.

Ironton, Ohio

MEACHAM & WRIGHT COMPANY

CEMENT

CHICAGO

CAPACITY 700,000 BARRELS ANNUALLY

OFFICE ALLENTOWN, PA.

STANDARD SPECIFICATIONS GUARANTEED

USE

Superior Portland Cement

IN YOUR CONCRETE WORK and be assured of satisfactory results

Ask for a chemical analysis of Superior Cement, and we will show you something which will interest every cement user.

The Superior Portland Cement Co.

General Offices and Sales Department:
Union Trust Bldg., CINCINNATI, O.

WORKS:
SUPERIOR, Lawrence Co., Ohio
on D. T. & I., C. & O., and N. & W. Railways

"THE BEST IS NONE TOO GOOD

HIGHEST GRADE of Portland Cement

Every Barrel Absolutely Uniform.

R. R. facilities especially adapted for prompt shipments in the northwest.

Capacity 1,500,000 bbls. Yearly.

NORTHWESTERN STATES PORTLAND CEMENT COMPANY

MASON CITY, IOWA.

STORAGE CELLAR, MONROE, MICHIGAN

DAMP PROOFED

MAUMEE COMPOUND

THE MAUMEE CHEMICAL CO., 403 St. Clair Bldg., Toledo, O.

Washed-Steam Dried and Screened

Ottawa White Sand

Unexcelled for
- Facing Concrete Blocks
- Ornamental Concrete Stone
- White Plaster
- Roofing
- Exterior Plastering
- Sawing Stone and Marble, Etc.

Analysis 99.88

Prices, Freight Rates and Samples on Application

The Only Standard Sand

Ottawa Silica Co.

Ottawa, Illinois

LARGEST SHIPPERS OF WHITE SAND IN THE UNITED STATES

Your Bag Repairing Reduced 90%

Why bother sewing on patches, and then have stitches tear out, when by using

Little's Sac Paching Sement

You secure a permanent patch, better and more easily done.

It is applied with a brush. Time of mending and money saved. Isn't that economy? Write for further particulars.

The C. H. Little Company, DETROIT, MICHIGAN

TWENTY LONG YEARS

of time and weather tried out Ricketson's famous "Red Brick" Brand.

They Never Fade

COLOR

for Mortar, Brick, Cement, Stone, etc., and proved it to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson Mineral Paint Works
MILWAUKEE, WISCONSIN

Red, Brown, Buff and Black

CHATTANOOGA PAINT CO. MORTAR ECLIPSE COLORS CHATTANOOGA, TENN.

MORTAR COLORS

The Strongest and Most Economical in the Market.

CHATTANOOGA PAINT CO. STANDARD LOWES PAINT CHATTANOOGA, TENN.

Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO.
Chattanooga, Tennessee

Facts about the Bates Valve Bagging System in the lime industry

Eighty per cent of the hydrating plants of the United States are using it.

Several plants have two baggers.

Several plants have three baggers.

One plant has four baggers.

Two plants have orders with us not shipped yet.

Six other plants are figuring on installing it.

Our bagging machines will bag 150 tons in 10 hours with two men; 80 and 100 tons are being bagged now as a daily output.

The capacity of our bag plant is now being doubled.

We're in a position to take care of the entire lime industry of the United States.

The Urschel-Bates Valve Bag Co.
TOLEDO, OHIO

CONCRETE ENGINEERING

The following convention dates have been announced for 1910:

Nebraska Cement Users' Association at Lincoln, February 1-4.

Interstate Mantel and Tile Dealers' Association of the United States at Chicago, February 15-19.

Illinois Lumber Dealers' Association at Chicago, February 16-18.

Illinois Masons' Supply Association at Chicago, February 16-18.

National Association of Cement Users at Chicago, February 21-25.

American Society of Engineering Contractors at Chicago, February 24-26.

National Builders' Supply Association, February 23-24.

Illinois Society of Municipal Contractors at Chicago, February 24-26.

Northwestern Cement Products Association at St. Paul, Minn., March 1-5.

Iowa Cement Users' Association at Cedar Rapids, March 9-11.

CEMENT SHOW.

Rush for Space Makes Use of Annex Necessary—Official List of Exhibits in the Main Building.

Owing to the heavy demands made by exhibitors for space at the Cement Show, which is to be held at the Coliseum, February 18-24, the Cement Products Exhibition Co. announces that it has secured the Annex building, and those who were unable to get space in the Coliseum proper will be accommodated there.

At the drawing for allotments held on October 29, some 185 individuals and firms desirous of making exhibits were represented. The 50,000 square feet of floor space in the Coliseum was taken by 150 of these applicants, leaving 35 to be accommodated in the Annex. Since then a large number of additional applications have been received, and it is now evident that the capacity of the second building will be tested to the limit.

An important matter now receiving the attention of the management is the securing of an equitable railway rate, so that people from other cities attending the show may be assured that round-trip tickets may be had at one and one-half fare.

Before leaving for Europe, where he has been for some months, President Richard Humphrey, of the National Association of Cement Users, outlined his ideas fully to Vice President Watson and Assistant Krauss, and these gentlemen are carrying them out fully, not only in connection with the Cement Show, but also as regards the annual convention of the association which is to be held February 21-25. On his European trip Mr. Humphrey is making a close study of foreign methods, and when he returns about the middle of January will have a report of unusual interest to make to his brothers in the cement industry, and also a lot of ideas that will be of value in adding unique features and the show itself.

Another man who is working hard along the same lines, although he remains in this country, is President Frank L. Wright, of the National Builders' Supply Association, the annual convention of which will be held February 23-24. Everybody who knows the hustling qualities of Frank Wright will accept without question his statement that this convention will be a record-breaker in point of attendance and interest.

As previously announced other conventions will be held in Chicago during Cement Show week as follows:

American Society of Engineering Contractors, February 24-26.

Illinois Society of Municipal Contractors, February 24-26.

Illinois Lumber Dealers' Association, February 16-18.

Illinois Masons' Supply Association, February 16-18.

Interstate Mantel & Tile Dealers' Association, February 15-19.

It is probable that the delegates to all these conventions will meet in one body at some time during the show, and discuss plans for a general good of the cement industry.

Exhibitors who have been alloted space in the Coliseum, with the number of the space each will occupy, are given in the following official list:

Advance Concrete Mixer Co., Chicago, 173.
Alpha Portland Cement Co., Chicago, 106.
American Cement Roofing Co., Columbus, Ohio, 214.
American Contractor Publishing Co., Chicago, 177.
American Hydraulic Co., Denver, 87-88-89.
American Pulverizer Co., 212.
American System of Reinforcing, Chicago, 86.
Anchor Concrete Stone Co., Rock Rapids, Iowa, 169.
Architectural Stone Co., Cincinnati, Ohio, 4.
Arrowsmith Concrete Tool Co., Arrowsmith, Ill., 158.
Ashland Steel Range & Mfg. Co., Ashland, Ohio, 95-96.
Atlas Portland Cement Co., New York, 49-50-51.
Ballou Manufacturing Co., Belding, Mich., 17-18.
Barrett Manufacturing Co., Chicago, 90.
Barton System Concrete Con., Chicago, 117.
Besser Mfg. Co., Alpena, Mich., 157-159.
Bolte Mfg. Co., Kearney, Neb., 13
Brown Hoisting Machinery Co., Cleveland, Ohio, 28.
Cement Age Co., New York, 156.
Cement Era, Chicago, 174.
Cement Machinery Co., Jackson, Mich., 181-182-183.
Cement Record, Kansas City, Mo., 210-211.
Century Cement Machinery Co., Rochester, N. Y., 36.
Ceresit Waterproofing Co., Chicago, 15.
Chain Belt Co., Milwaukee, Wis., 54-55-56.
Chase Foundry & Mfg. Co., Columbus, Ohio, 206-207.
Chicago Architectural Photo. Co., Chicago, 162.
Chas. Wm. Chappelau, Chicago, 1.
Chicago Cement Products Co., Chicago, 2.
Chicago Concrete Tool & Specialty Co., Chicago, 160.
Chicago Monolithic Construction Co., Chicago, 77-78,
Chicago Portland Cement Co., Chicago, 81-82.
Myron C. Clark Publishing Co., Chicago, 143.
Climax Co., Chicago, 155.
Clinton Wire Cloth Co., Chicago, 147.
Corrugated Bar Co., St. Louis, Mo., 120.
Clover Leaf Machine Co., South Bend, Ind., 47-48.
W. A. Collins & Co., Chicago, 138-139.
Concrete Age, Atlanta, Ga., 149.
Concrete Engineering, Cleveland, Ohio, 171.
Concrete Publishing Co., Detroit, Mich., 118.
Concrete Stone & Sand Co., Youngstown, O., 106-111.
Cowham System Portland Cement Mills, Jackson, Mich., 75-76.
Cropp Concrete Machinery Co., Chicago, 195-196.
Crown Point Spar Co., New York, 5.
D & A. Post Mold Co., Three Rivers, Mich., 168.
Decorators' Supply Co., Chicago, 43.
Geo. W. DeSmet, Chicago, 44.
Dexter Bros. Co., Boston, Mass., 11.
Diamond Concrete Machinery Co., Chicago, 170.
Dodge Manufacturing Co., Mishawaka, Ind., 40-41.
Dunn Manufacturing Co., Pittsburg, Pa., 131.
W. E. Dunn & Co., Chicago, 178.
Engineer News, Chicago, 74.
Engineering Record, Chicago, 69.
Eureka Machine Co., Lansing, Mich., 222-223.
Fillmore Machinery Co., Cincinnati, Ohio, 144-145.
Foote Concrete Machinery Co., Chicago, 197-198.
Garden City Sand Co., Chicago, 70.
F. G. Gauntt Mfg. Co., Fort Wayne, Ind., 191.
German-American Portland Cement Co., Chicago, 141.
Groh Brothers, Kendallville, Ind., 172.
Gruman Concrete Machinery Co., Zanesville, O., 217.
Hall-Holmes Mfg. Co., Jackson, Mich., 42.
Hayden Auto. Block Mach. Co., Columbus, O., 204-205.
Hill Clutch Co., Cleveland, Ohio, 39.
Wm. B. Hough Co., Chicago, 111-112-113-114-115-116.
Robert W. Hunt, Chicago, 25.
Hydraulic Press Mfg. Co., Chicago, 208-209.
Hydrolithic Cement Co., Chicago, 35.
Ideal Concrete Machinery Co., South Bend, Ind., 29-30-31-32-33-34.
Inman Concrete Block Machine Co., Beloit, Wis., 119.
Ironite Co., Chicago, 7.
Kelley Island Lime & Transport Co., Cleveland, O., 81.
Kent Mill Co., New York, 175-176.
Kerlin Auto. Post Machine Co., Delphi, Ind., 201-202.
Knickerbocker Co., Jackson, Mich., 37-38.
Koehring Mach. Co., Milwaukee, Wis., 20-21-22-23-24.
Kramer Auto. Tamper Co., Peoria, Ill., 220.
Illinois Improvement & Ballast Co., Chicago, 140.
Link Belt Co., Chicago, 93.
Lock Joint Pipe Co., New York, 3.
Manufacturers' Record, Chicago, 130.
Marblehead Lime Co., Chicago, 6.
Marquette Cement Mfg. Co., Chicago, 64-65.
Marsh Co., Chicago, 52-53.
Mateer Bros. Co., Joliet, Ill., 152-153.
McIlroy Belting & Hose Co., Chicago, 14.
Meacham & Wright Co., Chicago, 45-46.
Miles Mfg. Co., Jackson, Mich., 67-68.
Miracle Pressed Stone Co., Minneapolis, Minn., 62-63.
Monolith Steel Co., Washington, D. C., 12.
W. D. Moore & Son, Creston, Iowa, 161.
Municipal Engineering & Contract. Co., Chg., 26-27.
National Fireproofing Co., Chicago, 66.
Northwestern Expanded Metal Co., Chicago, 79.
Ohio Ceramic Engineering Co., Cleveland, O., 193-194.
C. W. Overturf, Dumont, Iowa, 180.
Parker Hoist & Derrick Co., Chicago, 73.
Peerless Brick Machine Co., Minneapolis, Minn., 84-85.
Raber & Lang Mfg. Co.,Kendallville, Ind., 97-98.
Radford Publications, Chicago, 102-103-104-105.
Raymond Concrete Pile Co., Chicago, 61.
ROCK PRODUCTS, Chicago, 83.
John A. Ross & Co., Chicago, 132.
Sandusky Portland Cement Co., Sandusky, Ohio, 8.
Sanford Concrete Machinery Co., Toledo, O., 133-134.
Kent Machinery Co., Kent, Ohio, 135-136-137.
Sharon Steel Hoop Co., Chicago, 16.
Simpson Cement Mold Co., Columbus, Ohio, 165-166.
Sioux City Cement Mach. Co., Sioux City, Ia., 215-216.
Skillin & Richards Mfg. Co., Chicago, 146.
Smalley & Trulin, Panora, Iowa, 179.
T. L. Smith Co., Chicago, 58-59-60.
R. Z. Snell Mfg. Co., South Bend, Ind., 221.
Somers Bros. Mfg. Co., Urbana, Ill., 19.
Standard Asphalt & Rubber Co., Chicago, 92 (last).
Standard Scale & Supply Co., Chicago, 199-200.
Sterling Pattern Works, Sterling, Ill., 213.
Sterling Wheelbarrow Co., Milwaukee, Wis., 184.
Stocker Concrete Material Washer Co., Highland, Ill., 148.
St. Paul Cement Machinery Co., St. Paul, Minn., 186-187-188.
Sturtevant Mill Co., Boston, Mass., 128-129.
Svenson-Shuman Machine Co., Pittsburg, Pa., 150-151.
Taylor Iron & Steel Co., High Bridge, N. J., 94.
Toledo Wheelbarrow Co., Chicago, 189-190.
Troy Wagon Works, Troy, Ohio, 71-72.
Trussed Concrete Steel Co., Detroit, Mich., 9-10.
United Cement Mach. Mfg. Co., Plain City, Ohio, 218-219.
United States Gypsum Co., Chicago, 57.
U. S. Gas Machine Co., Muskegon, Mich., 224.
Universal Portland Cement Co., Chicago, 99-100-101-121-122-123-124.
F. P. Van Hook, Boise, Idaho, 192.
Wabash Portland Cement Co., Detroit, Mich., 163-164.
Waterloo Cement Machinery Corporation, Waterloo, Iowa, 103.
David Williams Co., New York, 185.
Williams Patent Crusher & Pulverizer Co., Chg., 127.
Wolverine Portland Cement Co., Coldwater, Mich., 91.
Zeiser Bros., Berwick, Pa., 142.

Plan Great Cement Show.

The sixth annual convention and cement show of the Northwestern Cement Products Association will be held in St. Paul, March 1-5. The Commercial Club of St. Paul has donated the use of the Auditorium to the association. This assures the coming convention unlimited space for exhibits. The Auditorium is the largest building of its kind in America, and is exceptionally adapted for a cement show. Teams loaded with cement machinery can drive through its immense doors direct on to the exhibition floor. The main hall is on a level with the street. The building is a block long, flanked on two sides by wide, beautiful corridors with numerous doors leading therefrom direct to the exhibition floor. The Auditorium was erected by the citizens of St. Paul for the benefit and pleasure of its people, and as a palace wherein to welcome guests of the city. The building itself will be a revelation to visitors. It cost $460,000 and is absolutely fire-proof, constructed principally of concrete, brick and steel, and contains nothing inflammable except a limited amount of wood interior finish, seats, stage property and settings. The seating capacity is 10,500. One thousand representative men of the Northwest sat down at a banquet in the auditorium main hall in honor of President Taft. It is a magnificent building and worthy of an immense show. It is brilliantly illuminated and contains within its walls every convenience for the exhibitor and visitor. The doors will be thrown open on Tuesday evening, March 1, and close Saturday night, March 5.

"The St. Paul," the new million dollar hotel, will be completed in ample time for the convention. It is the first million dollar hostelry erected in the Northwest; a 12-story fire-proof building of the most modern type, upon the roof of which will be installed the first commercial wireless station in the West. It contains 300 outside rooms, with bath.

STRUCTURAL TILE.

Leading Architects Recommend Pauly's Great Invention Without Reserve.

BY H. LYMAN FORD.

Of Miller & Ford, Architects, Youngstown, O.

Our firm has, as all other architectural firms have in recent years, used concrete in different parts of buildings, chiefly in footings and foundations, either by pouring in wooden forms or by the use of blocks. We realized that these methods did not adequately fill the bill and looked forward to the time when some ingenious Yankee would invent some kind of a cement product that would apply the material in a more economical way, using a minimum amount of material to obtain the result desired.

In our dealings with concrete contractors we had formed a very agreeable acquaintance with the Concrete Stone & Sand Co. of this city, which has one of the largest concrete, sand and gravel plants in this part of the country. We knew that this firm was experimenting with a view to giving the public a new building product. We supposed that its efforts along this line would result as most others have in the production of a block or brick that would be as expensive, or more so, than the brick and stone products already on the market. We gave it little attention until a member of the firm came into our office one day with two concrete structural tile and a catalogue. When we had time, we gave the product and catalogue a thorough examination; we also carefully looked over the results of the company's experiments, and with growing interest, in some small buildings they had built. Then, after using it ourselves in a small way, we fell in love with the Pauly concrete structural tile, as I believe every user will, whether he be architect, contractor or owner, if he gives it a fair trial. We have already interested several of our most venturesome clients in this tile, with the result that they have let several contracts for buildings much to their pecuniary benefit.

Description of the Tile.

As will be seen by the illustrations, the Pauly tile is made in similar form and size to terra cotta tile already on the market, except that it is not necessary to corrugate the surface in order to make the plaster stick. The principal ingredients in the composition of both the tile and plaster are the same, and provide a suitable bond both inside and out for the plaster without corrugation. The shell and webs are thicker, making the tile stronger and better able to resist the knocks that are incident to shipping, delivering and handling about a job. The company has not as yet put on the market any tile shaped for straight arches for making floors in steel frame buildings, but such can be made as easily as the other forms already in use, and will be as soon as there is a demand for them.

Cost.

Inasmuch as these tile are made by the simple process of pouring concrete into moulds and curing them by means of steam, all the expense of baking in kilns is avoided; therefore despite the fact that the original cost of the material put into concrete is greater than in the terra cotta tile, the advantage in the cost of manufacture is greatly in favor of the cement tile. It will be understood, also, that the terra cotta tile must necessarily be graded into firsts and seconds because of the warping of the tile in the kilns; but no such discrimination is necessary in case of the concrete tile as they are all of one grade and can be bought in our market at the same price as terra cotta.

Construction and Advantages.

One of the principal advantages of concrete tile over the old block is the elimination of all wood furring on the inside of bearing walls. The plaster is applied directly to the tile on the inside and does not sweat in cold weather as did the old block, consequently the furring and lathing is wholly eliminated. (See Fig. 1.)

Another short cut in construction by this material is in making a solid concrete foundation. By using tile with the perpendicular spaces and filling each course with concrete as the wall is built a solid concrete wall can be had without the expense of wooden forms, besides leaving a splendid uniform block finish on the inside of the basement. (See Fig. 1.) The same method may be adopted in the construction of piers with favorable results.

In spanning openings it is best, especially for narrow openings, to have the lintels made beforehand so as not to retard the work of laying up the wall while waiting for poured lintels to set; but for wide openings and for porch plates where long lintels are necessary they must be poured and reinforced by tension bars. In the way shown in Fig. 2 the tile may be utilized to save the necessity of boxing, and furnish a lintel second to none. In this illustration a lintel over a window opening is shown; the 2"x8" joist would be necessary to nail finish to. In case of a lintel for a porch where no wood finish is desired the lintel should be made of tile the same width as supports, omitting the joist. Lintels could be made in this way beforehand for any job provided the width of spans and weights they were to hold could be furnished.

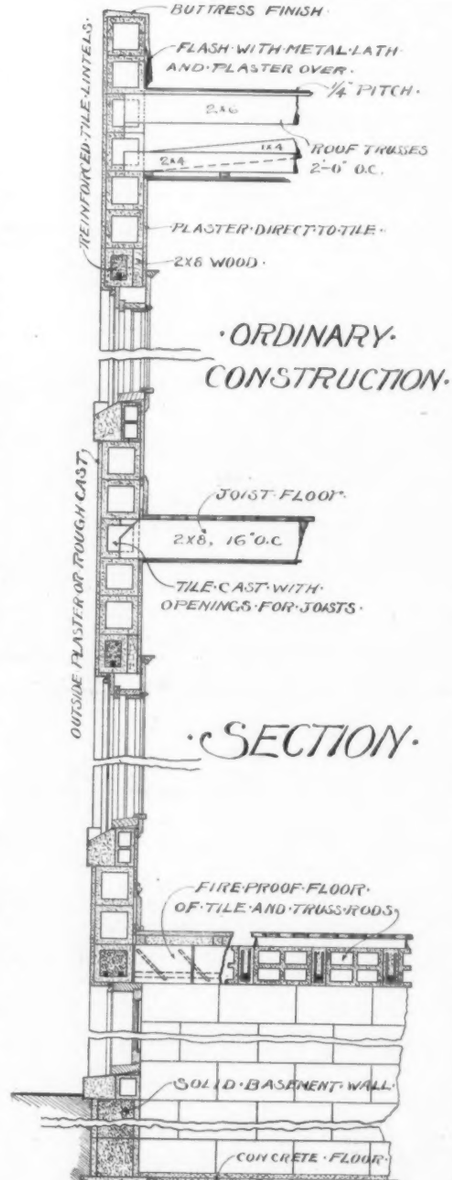


Fig. I

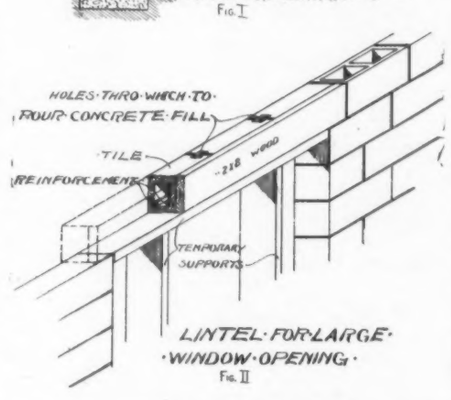


Fig. II

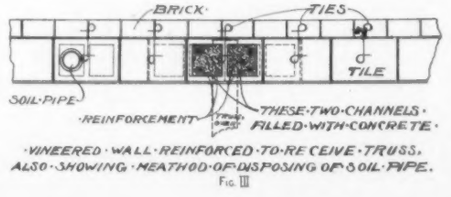


Fig. III

In case any part of a wall is required to be strengthened to receive the load of an I beam or truss, an upright line of tile with the perpendicular openings can be introduced. This should be poured from top to bottom with concrete and reinforced with rods if necessary, and you have a pilaster of the required strength without increasing the thickness of the wall at that particular place, as would be necessary with brick or other material. (See Fig. 3.)

In making fireproof floors, special stress is laid upon the evenness of the concrete tile over the terra cotta. The same method of construction as used with terra cotta tile with any of the several forms of patent truss rods should be followed (see Fig. 1), with the result that a strong and durable fireproof floor may be had at very little increased expense over a joist floor; this is soon made up to the owner by such advantages as the saving on his insurance, and the better renting possibilities of a more fireproof and soundproof building.

Another economical point in this method of construction is shown in Fig. 1 in the way of counter-flashing the roof. The roofing is turned up at the coping walls in the usual way, but instead of a copper flashing a piece of metal lath can be nailed on at the place where the flashing usually goes and the plaster carried down over the lath, making a thoroughly water-tight flashing at a far less expense.

To illustrate the saving of labor in using these tile for building purposes let us take for example the tile No. 7, 8"x8"x16"; figuring twenty brick to the cubic foot this tile would lay a space equal to about twelve brick. The tile could be easily handled by one man and laid in the time it would take him to lay about three brick, to say nothing of the time saved in plumbing up one tile as against twelve brick and the handling of same by the helper. Anyone familiar with laying walls will readily see that there is a great saving in time and labor in building a wall of these tile over laying the same wall in brick.

In case a brick exposure is desired the tile may be used on the inside and by means of wire wall ties, as in Fig. 3, a veneer of brick on the outside will accomplish the result as cheaply as the old method of veneering onto a studded and boarded backing.

A great advantage to the contractor in the use of these tile lies in the opportunity to use an almost unlimited number of masons, and, except the foreman, a less skilled class on any job, thus enabling him to finish a job, receive his pay quicker and go at another.

The owner in his turn receives his building from the contractor sooner, and usually rents it to better advantage. Where borrowed capital is used and interest is charged the owner from the time the first payment is made, the saving in interest is quite an item.

In regard to the cost of buildings constructed of these tile as compared with ordinary frame construction, we find that at the present prices of material in this city, a tile residence with wood roof, joist floors and wood studded inside partitions, without any plaster on outside of building can be built at the same price as a good frame constructed residence of the same size. A very neat and inexpensive finish for the exterior of one of these houses may be had by scraping all joints smooth and giving the exterior a heavy brush coat of sand and cement. Plastering or veneering the outside with brick or stone would be additional. Putting in fireproof floors and partitions of tile would amount to the cost of the same minus the value of the same floors and partitions in wood. To build a fireproof building of concrete structural tile would cost about 15 per cent more than to build the same building of wood; this amount would be soon saved in smaller insurance rates an increase in rent rates.

Another feature that the attention of the public should be called to is the vermin-proof feature of a house constructed of this material. If thoroughly and properly constructed there should be no lodging place for any kind of vermin.

The paramount advantage to the general public, including architects, contractors and owners, lies in the fact that any small town or city that has a reasonable amount of building can, with small expense, put one of these plants into operation and provide for building operations a local material of the best quality that can be used at any time and place, making it possible to build without depending upon the railroad to bring in foreign materials fast enough, to say nothing about freight rates, etc., which are a great item in shipping brick and stone.

In the illustrations of this article will be seen some

details showing various methods of finish and construction. Fig. 3 shows how a soil pipe can be taken care of without furring or jogging out into the room. The average dead weight per cubic foot of this tile is about sixty pounds. Anyone familiar with building operations will see by this that the saving in weight of I beams to hold walls will be quite an item.

By way of an example of a moderate priced small residence we submit from our assortment the cottage shown in Fig. 4. This house is about 16x30' on the ground, has front and rear porches, and contains five commodious rooms and a bath, with a cellar under the whole house; also has an abundance of closet room. It can be built with oak finish for lobby, stairs and living room, yellow pine for the balance, as shown, with wood joists and no plaster on outside, for the same price as frame, or $1,748.56. The cost of a wash coat of cement and sand over the outside would be about the same as a good coat of paint, or about $35.00 more. A finish of two coats of plaster, rough cast or otherwise, would be about $100.00 or more. Then it could be built dust, wind, water, rat and fireproof with a plaster finish for $1,839.56, making it a very economical proposition in any event. In the construction of this cottage tile No. 15 is used in the basement, filled with concrete, making a solid wall to the first floor; from there on tile No. 7 are used, with No. 14 for returns at corners, around openings and for soil pipe chase. The itemized cost of this building is:

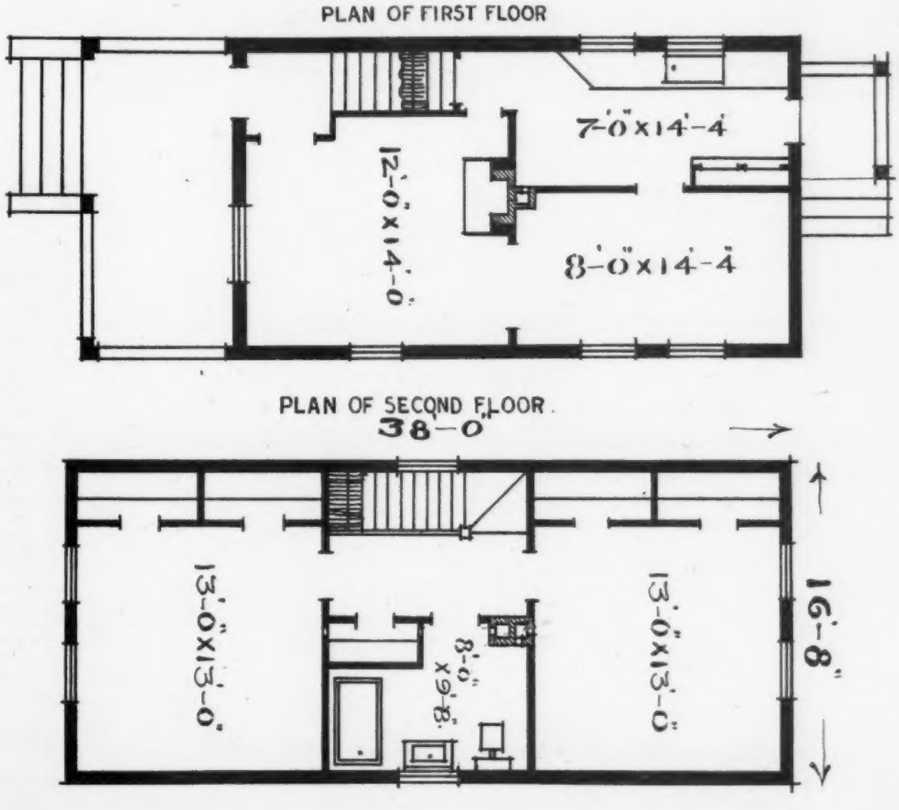
Excavation	$ 50.00
Cellar walls	156.00
Main building (stuccoed)	459.80
Plumbing	215.00
Painting	50.00
Hardware and glass	45.00
Lumber	351.76
Carpenter work	230.00
Chimney	40.00
Roofing, drop slate	42.00
Interior plastering	200.00
	$1,839.56

As a general summing up of the suggestions, information and data contained in this article, I wish to repeat that I consider this method of applying cement to the construction of buildings the most sane, simple, effective and economical way yet devised, and expect to continue its use wherever an opening presents itself.

FIG. IV

Concrete Company Ready for Business.

The American Concrete Company, which settled in Miltown, N. J., last February, is now opened up for business. Since their coming into the town they have been laying aside and testing a large stock of concrete work. Everything that is made from concrete can be furnished by this company. A specialty is a new kind of concrete tile roof, which is being introduced for the first time.



Prizes for Concrete Workers.

In offering cash prizes for the best examples of block construction, the Century Cement Machine Co. is doing much toward building up the industry. It is a grand opportunity for the many operators of Hercules machines to show what can be done with the concrete block in the construction of artistic buildings. Furthermore, the prizes offered are worth striving for and it is to be hoped that all users of Hercules machines will respond promptly. Full information regarding the prize contest can be had by addressing the Century Cement Machine Co., Rochester, N. Y.

Concrete Pile Contracts Awarded.

The contract for placing the concrete piles and foundations for the United States postoffice, to be erected at Manistee, Mich., has been awarded to the Raymond Concrete Pile Co., of New York and Chicago. The plans were drawn by James Knox Taylor, supervising architect, U. S. Treasury Department, and the Majestic Construction Co. is the general contractor.

The Bigelow-Harriman Construction Co. has awarded the contract for the concrete piling for the foundations of a paper mill that it is building at Montville, Conn., to the Raymond Concrete Pile Co. George F. Hardy is the engineer.

Five hundred feet of reinforced concrete bulkhead and traveling crane supports for the Maryland Steel Co. at Sparrow's Point, Baltimore, Md., will be furnished by the Raymond Co.

The Cleveland Concrete Co., of Cleveland, Ohio, has been organized with a capital of $1,000; certified in Indiana for $500; engineers and constructionists.

The Virginia Waterproofing Corporation, of Norwalk, Va., has incorporated with $40,000 capital stock. F. B. Hodgson is president; C. C. Walton, Jr., vice president; E. R. Joynes, secretary and treasurer.

George R. Williams, president of the Southern Concrete & Construction Co., St. Petersburg, Fla., is receiving proposals on machinery for the plant. He will erect a mill construction building, 30x100 feet, at a cost of $5,000. The company will manufacture concrete brick, house and sidewalk blocks.

CONCRETE SPLASH DAM.

Structure in Virginia Has Many Unique Features, and is Largest of Its Kind Ever Constructed.

For the last seven months the Yellow Poplar Lumber Co., of Coal Grove, O., has been engaged in the construction of the largest splash dam for log driving purposes that has ever been erected. It is located in Dickinson county, Va., on Russell Fork, the main stem of the Big Sandy river, just below the mouth of Bart's Lick and Pound river, tributaries of this stream.

This dam, the cost of which was $40,000, is anchored in solid rock at both sides and base. Its extreme length is 360 feet. It contains five "flues" or flumes, each 40 feet wide, which are temporarily filled with an ingenious arrangement of spars and planking held in place by wooden triggers. These triggers consist of pieces of timber 10" in diameter and 6' long, fitted between an 18" steel T girder projecting from the concrete piers and the 36" timbers which extend from pier to pier, which support the ends of the spars carrying the splash board planking. Holes are bored in these triggers and a stick of dynamite placed therein, and exploded. By this means a full head of water is secured, thus splashing out the logs above the dam and driving those below through the "breaks" of the lower river. It is expected the dam will afford sixteen feet of water through the five miles of "breaks" of the Big Sandy river, and take the logs down to the lower reaches which are free from rocks and other obstructions.

NEARLY COMPLETED CONCRETE LOG SPLASH DAM OF THE YELLOW POPLAR LUMBER COMPANY, OF COAL GROVE, O., IN BIG SANDY RIVER, DICKINSON COUNTY, VIRGINIA.

The photograph from which the accompanying engraving was made was taken a couple of weeks ago, shortly before the dam was completed. The several flues are each 40' wide, and the piers are 10' wide, 32' long at the base, sloping to the top, which is 10x20' in size. The end piers are nearly one hundred feet long. The upper end of the piers have a 5' V shaped nose or extension to ward off logs and lessen the impact of the water. The dam is mounted on a subdam five feet above the mean bed of the river, and let into the solid rock formation of the river bed. After the excavation was blasted, the entire bed under the piers was drilled and sections of 60-pound steel rail set on end to form an anchorage for the piers.

In making the concrete for the dam forty carloads of "Limestone" brand of Portland cement, manufactured by the Ironton Portland Cement Co., of Ironton, O., were used. This cement was shipped by rail to Elkhorn City, Ky., and then transferred by wagon over two mountain ridges on roads of extreme roughness to the site of the dam. It required seven months to transfer this cement and forty mules have been constantly employed in the work. The cost of wagoning was 40c a hundred. In making the concrete the following formula was followed: To every barrel of cement (3.8 cubic feet) was added 29.50 cubic feet of sand with 19 cubic feet of crushed sandstone. One peculiar feature of the construction is the fact that the sandstone rock was found in the bluffs immediately beside the dam site, and the sand was secured in the river bottom at the same point. Another interesting fact is that a vein of coal was also located close by and from an opening, which may be seen at the right of the picture, the fuel was taken with which to operate the crushers, mixers and other machinery necessary for transferring the buckets of concrete to the piers.

This dam will back water up Russell Fork about one and a third miles. The dimensions of the dam are 25' high above the sub-dam, 360' on top and about 340' at the base. Above this dam is now dumped nearly thirty million feet of poplar logs averaging about 700 feet to the piece and which may now be driven to "floating" water ten miles below the dam. It is expected the first "splash" from this dam will be turned loose about December 1st.

The Yellow Poplar Lumber Co. has had long experience in splash dam construction in the mountain streams of Kentucky and Virginia, but this is the largest one ever built by it, and the largest dam ever erected in the history of lumber operations for this purpose.

Laying Concrete Blocks Properly.

In a communication received recently by the Century Cement Machine Co., of Rochester, N. Y., from the L. B. Valk Architectural Co., of Los Angeles, Cal., the question of properly laying concrete blocks is brought out most forcibly. This company states that the trouble with the average manufacturers of blocks is that either through inexperience or want of capital, they hesitate and even refuse to contract to lay up their own work. The result is the laying of the blocks is not carefully done and this has a tendency to condemn the work.

Cut stone contractors will cut and lay their own work and be responsible for it. Artificial stone men must do the same in order to have first-class work and secure the contracts. Anything that can be done to impress upon block makers the necessity of being more particular in regard to laying blocks will do much toward helping the industry. In the event that block makers cannot arrange to do the laying themselves, they should at least see to it that it is in the hands of responsible parties, capable of doing the work in a manner that will reflect credit on all connected with it.

The Valk Co. has designed several very handsome churches which have been built with blocks made on Hercules machines.

Eight Fire Cisterns of Concrete.

OTTAWA, OHIO, Nov. 17.—F. V. Fender, the well-known contractor and builder, has had a very busy season. At present he is putting in eight fire cisterns at Glandorf, Ohio, 10' wide, 26' long, 12' deep, floor 8' thick, side walls 14" thick, end walls 12" thick, crowned top 12" thick. The concrete used was made of one part Atlas Portland cement and four parts stone sand from the Gortchins Stone Co., of Lima, Ohio. The contract price for the eight cisterns is nearly $7,000. Mr. Fender is also building a 2-story dwelling house in the heart of town composed of concrete blocks 28"x36". The house will contain twelve rooms and will cost $2,600 complete. He has also commenced work on a garage which will be 30'x165'. The first floor and foundation will be concrete.

Concrete Wall in Defiance Canal.

DEFIANCE, OHIO, Nov. 17.—A survey has been made of the Miami & Erie canal, from Third to First street, preparatory to the construction of a retaining concrete wall along the banks of that portion of the canal. It will probably be built this fall and will greatly improve the appearance of the state property.

Chance For American Contractors.

A Russian city has applied for power to arrange for a loan to be used in constructing municipal works. This includes $1,250,000 for a sewerage system, $750,000 for the enlargement of the drinking-water system and the construction of a new reservoir, $500,000 for the establishment of an electric street-car line, and $250,000 for the erection of an electrical station for lighting and power purposes. An American consular officer states that he is in communication with the mayor of the city in regard to these works. It would seem that here is a good opening for concrete construction, and for the use of concrete machinery.

An American consul in Mexico reports that work will shortly be commenced on a dam to be constructed in that country. It is expected that the work will be finished within two years, and upon its completion hydro-electric power machinery will be installed for the transmission of light and power to neighboring cities.

Concrete Bulkhead to Raise Boat.

SAULT STE. MARIE, MICH., Nov. 18.—Capt. W. W. Smith, superintendent of the Pittsburg Steamship Co., who is in charge of the work of releasing the whaleback steamer John B. Trevor, which has been on the rocks at Isle Royale for several weeks past, has expressed his opinion that the boat will be eventually saved. He has decided to put in a concrete bulkhead over the after steel bulkhead, believing that this will enable him to work the air compressors successfully. The hatches on the boat were sealed with paper and pitch, and the air compressors started in an effort to float the ship, but many leaks were discovered in the new bulkheads, and pumping was deferred. Other material has now been ordered, and the work of putting on the concrete bulkhead will begin at once.

Small Concrete Bridges Most Economical.

State and county engineers, as well as the county commissioners, are fast realizing the advantages of concrete for bridge and culvert purposes on highways. This class of construction has made rapid advances in the past few years and in some counties the old style wooden and steel structure is taken down to be replaced by a modern concrete bridge. For a permanent and economical structure, concrete is the best to be had. At various times we have shown pictures of small bridges and the practicability of concrete for this purpose.

Iowa has not been slow in adopting new ideas, and concrete has made rapid strides in that state. The commissioners of Rockwell, Iowa, constructed a concrete bridge which has two 50' arches and a 16' roadway. This is over a piece of marshy ground and has proven its merits. The bridge was constructed by M. N. Stark & Co., of Des Moines. Northwestern States cement was used in the work.

Concrete In London's New Lake.

The new reservoir which is being constructed for the metropolitan water board at Chingford, Essex, England, will be the largest of all London's lakes. It will extend to 416 acres, with a circumference of nearly five miles. The new channel for the River Lea, which is being built outside the reservoir, is three miles long. Among other materials there will be required 157,000 cubic yards of concrete and 21,000 tons, or 350 barge loads, of Portland cement. The time for the completion of the works is four years from March, 1908.

Meeting of American Society of Mechanical Engineers.

The thirtieth annual meeting of the society will be held in the Engineering Societies building, 29 West 39th St., New York, December 7 to 10.

The entire social entertainment will be in charge of the members resident in and about New York, under the immediate direction of a local committee of which William D. Hoxie is the chairman. For Wednesday afternoon, December 8, an excursion is planned which members and guests will be asked to attend in a body, and during the balance of the time there will be opportunities for smaller parties to visit places of interest. In the evening there will be a lecture for members and guests upon the subject of agricultural machinery.

Professional papers assigned to the meeting are as follows: Tests on a Venturi Meter for Boiler Feed, Chas. M. Allen; The Pitot Tube as a Steam Meter, Geo. F. Gebhardt; Efficiency Tests of Steam Nozzles, F. H. Sibley and T. S. Kemble; Electric Gas Meter, C. C. Thomas; Tan Bark as a Boiler Fuel, David M. Myers; Cooling Towers for Steam and Gas Power Plants, J. R. Bibbins; Some Studies in Rolling Mill Engines, W. R. Caine; Experience with Leaky Vertical Fire Tube Boilers and the Best Form of Longitudinal Joint for Boilers, F. W. Dean; Testing Suction Gas Producers with a Koorting Ejector, C. M. Garland and A. P. Kratz; Bituminous Gas Producer, J. R. Bibbins; Bucyrus Locomotive Pile Driver, Walter Ferris; Line-Shaft Efficiency, Mechanical and Economic, Henry Hess; Pump Valves and Valve Areas, and a report on Cast-Iron Test Bars, A. F. Nagle.

In addition to the above papers there will be several valuable reports submitted by committees of the gas power section.

Concrete Buildings in China.

The following information concerning the concrete industry of Swatow is furnished by Consul Albert W. Pontius, of that Chinese port:

The construction of houses and walls of concrete is an industry peculiar to Swatow. The work was instituted several hundred years ago, and the absence of any buildings or walls constructed of brick is conclusive proof of its stability and lasting qualities. The industry originated with a French priest, who constructed one of his chapels of this material.

Very small pebbles or shale, sand, and lime are the ingredients of which the material is made. The mixture, after being thoroughly incorporated, is slightly moistened, and then pounded in a rough wooden mold, which is elevated in a runway supported by firmly set poles, and in spite of the crude methods employed, a height of 60 feet can be easily reached. When the walls have been constructed, all supports are removed and the concrete is for some days exposed to the air. To this exposure is its characteristic solidity solely attributed. The walls vary from 12 to 16 inches in thickness, and the cost of construction is considerably less than brickwork. The thickness of the walls give absolute guaranty of fireproof qualities. Storehouses and buildings constructed of this material many years ago are conclusive proof of its strength and durability. No single instance has been known of the accidental collapsing of such concrete built walls.

In some instances split bamboo poles have been used to reinforce the material, the wood preventing cracks from appearing and adding to the strength. Bamboo imbedded in the concrete in this manner does not rot, and it seems odd that the practice is not more general. Steel or iron reinforcing, owing to the added expense, is never used. The cost of construction is invariably figured at $9 Mexican per Chinese chang ($3.67 gold per 8 square feet).

PLANT AND YARD OF GEORGE RACKLE & SONS CO., CLEVELAND, O.

Doing A Fine Business.

The George Rackle & Son Co., whose plant is located at 3147 Superior avenue, Cleveland, manufacture a concrete block, which is known far and wide as an "art stone." It has a smooth surface and has the appearance of finished cut stone or granite. Its surface is not rough nor porous like the ordinary concrete block which has been in use for building. The consequence is that this concern has put up some exceedingly fine residences, public buildings and churches throughout the country. A unique feature of this concern is that where it puts up a structure at a distant point it sends a crew with tents from its plant in Cleveland. In these tents the machines are housed and the manufacture of the stone required on the job goes on. It has put up at Barberton for O. C. Barber, a three-story residence, which is called the finest in that place. The style of architecture is the Corinthian, and the Corinthian columns on the portico, running from the ground through the three stories supporting the pediment over the entrance, give to the building an exceedingly attractive and dignified appearance. It is also building three silos for Mr. Barber, 40 feet high and 25 feet in diameter. These are built of hollow blocks laid up and then reinforced with iron rods making a cast face reinforced job.

It has furnished the stone for the power house of the Gary Heat, Light & Water Co., at Gary, Ind., using throughout this building Universal cement. This building is attracting much attention among the cement people in the country. Herman E. Rackle, the president of the company, said that he had had his hands full this fall building structures in Missouri, Ohio and other states.

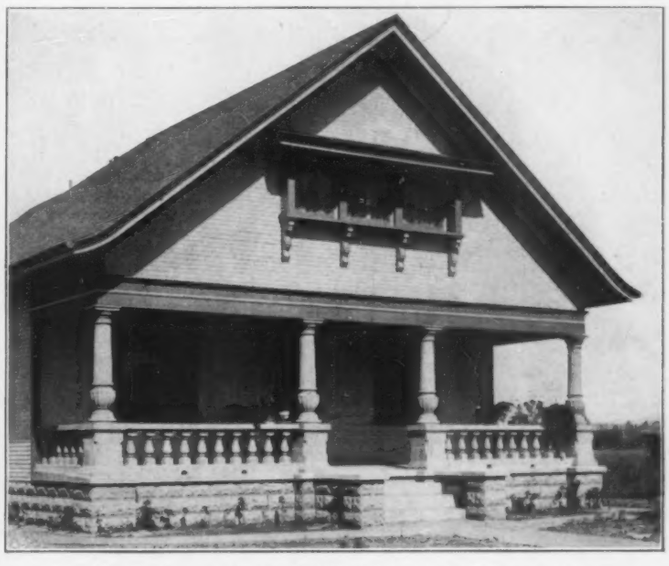
Book on Ornamental Concrete.

Much interest has been shown of late by all classes of people in ornamental concrete, but little, if anything, is known regarding the unlimited possibilities of the artistic treatment of this material. Because of this condition Ralph C. Davison, assistant secretary of the Concrete Association of America, has prepared and published a work on "Concrete Pottery and Garden Furniture." He is most minute in his descriptions of how the various pieces described should be made. Taking for granted that nothing is known about the material, he explains each progressive step in the various operations in detail. The amateur craftsman working in clay will appreciate the adaptability of concrete for pottery work and find the book of great interest. The titles of the thirteen chapters of which the book is composed will give a general idea of the broad character of the work. It contains 196 pages and 140 illustrations. Price, postpaid, $1.50. Munn & Co., publishers, 361 Broadway, N. Y.

The sixth annual convention of the Iowa Association of Cement Users will be held in Cedar Rapids, Ia., March 9, 10 and 11, 1910. The meetings and exhibits will be in the Auditorium and the Montrose hotel will be the convention headquarters. The outlook was never better for a big and successful meeting. Ira A Williams, Iowa State College, Ames, Ia., is the secretary.

The Allen-Pooler Concrete Co., of Portland, Me., has been incorporated for $50,000. The incorporators are C. E. Eaton, T. L. Croteau and J. E. Mantor.

RESIDENCE OF I. D. WORMAN, VAN WERT, O.



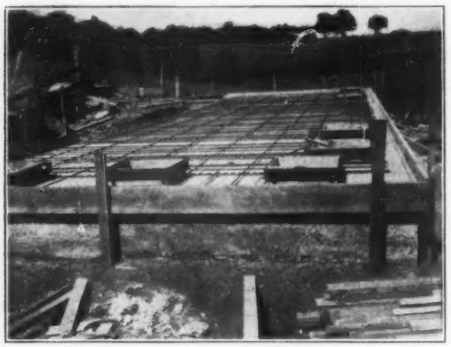
RESIDENCE OF JOHN POPPETT, SAN BERNARDINO, CAL.

TWO SPLENDID EXAMPLES OF SIMPSON CONCRETE PORCH MOLDS.

DISPOSAL SYSTEM FOR SMALL TOWNS.

(Continued from page 3.)

the trough is 12" and the side-walls are 10" high. The floor was laid on a bed of cinders, with a total pitch toward the center of 6". From each side, at the bottom of the trough, eighteen pieces of 1" galvanized iron pipe, one foot long, extend horizontally, at regular intervals. These empty the contents into 3" drain tile pipe, laid end to end upon plank spaced upon 24" centers, which in turn rest upon the broken tile of the filter bed. An even distribution is thus assured. Three vertical 6" cast-iron

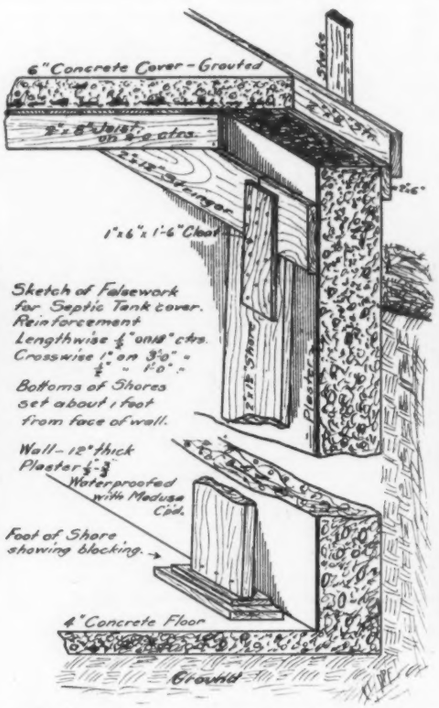


REINFORCEMENT BEFORE CONCRETE WAS POURED ON ROOF OF SEPTIC TANK, WITH C. I. COVERS IN PLACE.

risers connected to the septic tank provide the filter with material and a 10" pipe connected with a hole in the floor of the filter to the 12" sludge main carries off the filtered material. Three 6" juted, calked and cemented pipe lines connect the risers with the siphons in the septic tank.

The material required for the purification works consisted of about forty yards of concrete for the floor, piers and troughs; 3,000 8"x8"x16" tile, 540 feet of 3" drain tile; 140 feet of tile coping and metal fixtures including C.-I.-risers and foot ells; 1" spreader pipe (108'), and trough reinforcement. The total cost of the plant was about $2,200.

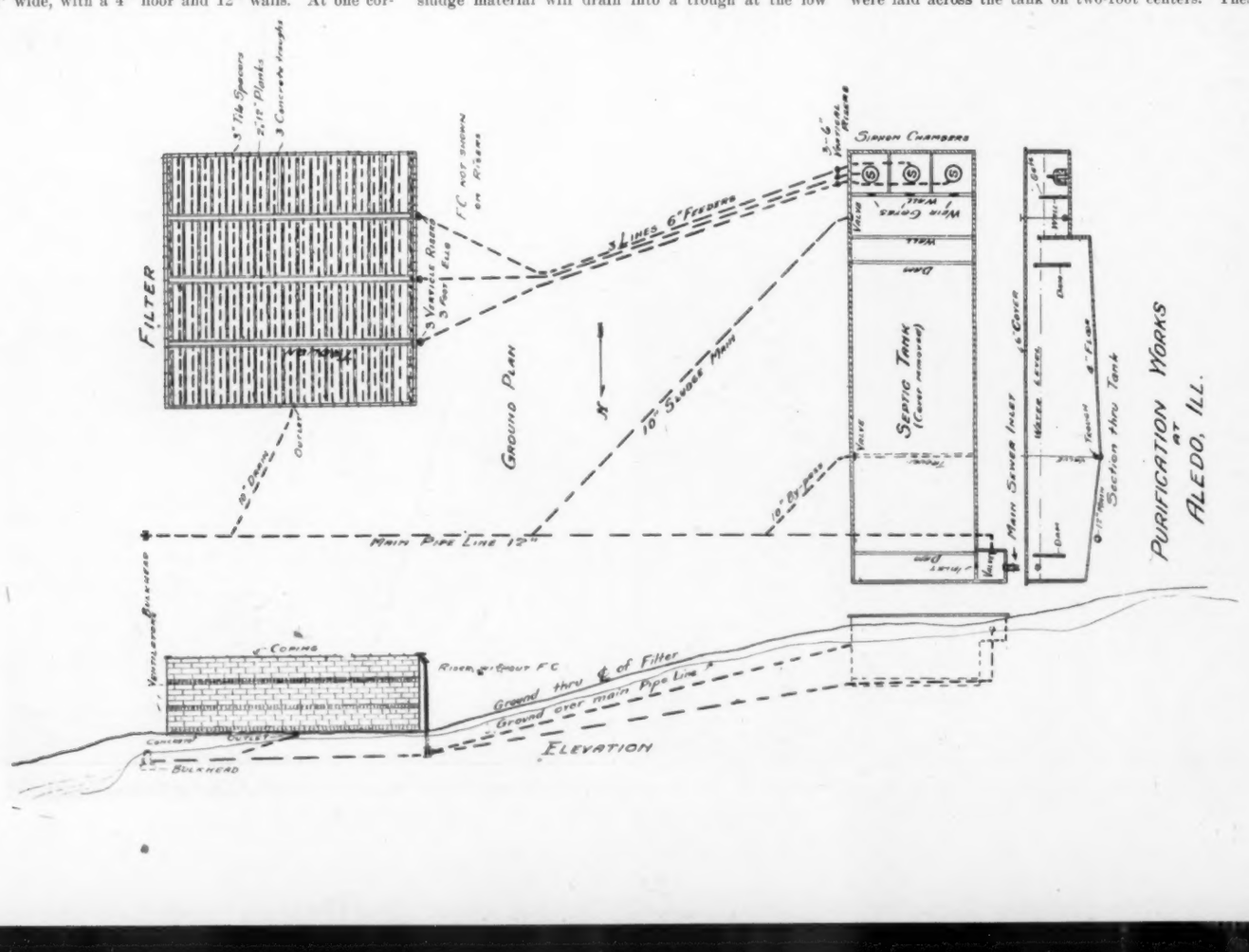
The septic tank is built in the top of the hill. The main part is a rectangular concrete box 62' long and 17' wide, with a 4" floor and 12" walls. At one cor-

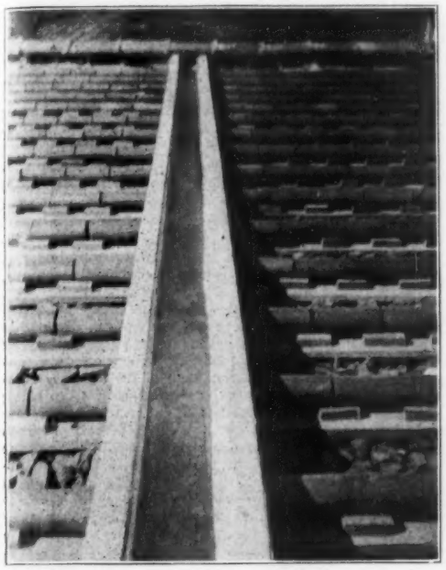

6"Concrete Cover - Grouted
Stake
2"x8" Joist on 2'-0" ctrs.
2"x12" Stringer
1"x6"x1'-6" Cleat
Sketch of Falsework for Septic Tank cover. Reinforcement Lengthwise ½" on 10" ctrs. Crosswise ½" on 3'-0" " ½" " 1'-0" "
Bottoms of Shores set about 1 foot from face of wall.
2"x8" Shore
Plaster
Wall - 12" thick
Plaster ½" - ¾"
Waterproofed with Medusa Cpd.
Foot of Shore showing blocking.
4"Concrete Floor
Ground

ner of the tank a small concrete chamber provides an inlet for the main sewer. At the other end of the tank the first five feet is occupied by three siphon chambers and the second five feet by a chamber into which the material must flow before reaching the siphons. Small weir gates in the walls of the siphon chambers regulate the flow to the siphons. Hence, each siphon may be worked independently of the others. Four feet from each end of the main compartment is a dam elevated above the floor about five feet and reaching about a foot above the water level. The floor of this compartment is pitched so that the sludge material will drain into a trough at the low point and run off through the sludge main when the valve is opened. Three 6" automatic bell siphons, one for each chamber, operate the tank and a 10" and a 12" valve open into sludge mains. Another 12" valve in the inlet chamber diverts the course of the sewer into a vertical by-pass alongside the tank, which is connected directly to the 12" sludge main. This whole operation is independent of the operations of the tank, so that when the tank is cleaned or an accident occurs, the sewage may be diverted from the tank and carried away without going through any part of the purification works.

INTERIOR VIEW SHOWING DAM AND TROUGH WITH 12" BY PASS.

Forms for the septic tank cover were constructed in a somewhat unusual manner. The tank being located on a hill, the banks were trimmed and used for the outer form and the inner form was erected in the usual manner, using 2"x4" studs and 1"x6" ship lap for sheathing. After the walls were made the forms were removed and the floor laid. Then began the work of building the form for the cover. Every five feet along the wall, vertical 2"x12" shores were placed with 2"x12" stringers, butt-jointed over a shore and cleated with small 1" pieces. Both shores and stringers were placed flat against the wall alongside of the tank. Upon the stringers 2"x8" joists were laid across the tank on two-foot centers. These





SHOWING TROUGH TILE SPREADERS AND COPING FILTER WALL.

were toe-nailed slightly to hold them upright and then the floor was laid. After the form for the projecting edge of the cover had been made and the middle line of shores set in, the floor was levelled by blocking and the use of wedges. After setting the seven cast-iron opening covers, the reinforcement was laid and then the form was filled, finished and then allowed to set for five days. In taking out the forms, the blocking was first knocked out, then the 2"x8" joists were tipped over with a sledge and the whole form taken apart piece by piece very simply and with absolutely no danger to the men.

The cover is 6" thick at the sides and 7" at the center, and has a smooth cement grout finish over a trowelled surface. The inside of the tank is plastered and water-proofed with "Medusa" compound.

The material for this tank consisted of 110 yards of gravel, 150 barrels of Chicago AA Portland cement, besides metal fixtures, valves, three siphons, seven covers, etc., and the reinforcement in the tank cover. The total cost of the tank was $2,300.

The whole system has been recently tested and found to work in a very satisfactory manner and the citizens of the little town are very proud of their model sewerage system and purification works.

The town of Galvin, Ill., is at the present time putting in a similar plant, and several other municipalities have the subject under consideration for construction work next summer.

Plan Warehouse of Concrete.

Following the completion of the main machine shop addition at the plant of the Dodge Manufacturing Co., Mishawaka, Ind., ground has been broken for an additional warehouse for finished products. The plans call for a structure of reinforced concrete, 256' long by 112' wide, four stories high and a basement, and will cost in the neighborhood of $160,000. The first floor raised to a level with the floor of a freight car, will be used for shipping and inspection purposes, with offices for the general traffic manager and his force. A loading platform will extend the entire length of the warehouse with ample trackage for loading and moving cars with promptness and speed. The Lake Shore & Michigan Southern already has extensive yards at the Mishawaka factory, but connection with the warehouse will be made direct. Suitably placed doors will give access to and from the shipping floor. The basement and the second, third and fourth stories will be confined to the storage of products. Each will have elevator facilities and the whole equipped with the most modern appliances of the day in warehouse construction.

Railway Has a Concrete Plant.

In his statement to the stockholders of the Northern Pacific railway, Howard Elliott, the president, says:

"During the year ninety bridges were replaced and sixteen abandoned. There are now under construction on operated lines 2,302 lineal feet of steel girders on concrete piers, 835 lineal feet of steel trestles and 1,616 lineal feet of reinforced concrete trestles.

"A plant has been established at Glendive, Mont., for the purpose of making concrete piles and slab girders, with which the present pile bridges, which it is not necessary to replace with steel girders, can be replaced in concrete with ballasted deck. It is expected that by the end of 1911 all timber structures on the main line between St. Paul and Livingston, Mont., will have been replaced with steel or concrete."

Finish Big Sea Wall.

PENSACOLA, FLA., Nov. 17.—Announcement has been made that the immense sea wall at Fort Pickens, across the bay on Santa Rosa island, upon which workmen have been engaged for the last two years, is completed.

The wall surrounds the fort on the Gulf side and is extended to protect the batteries from severe storms.

It is 14 feet in height and 12 feet thick, and contains 30,000 cubic yards of concrete and 2,000,000 feet of piling, costing the government more than half a million dollars.

Two-Million Dollar Water System.

SPRINGFIELD, MASS., Nov. 19.—By January 1 next the $2,000,000 water supply system Springfield has been building in the towns of Blandford, Westfield, Granville and Agawam will be completed and in use. Chief Engineer Elbert E. Lockbridge, of the water department, has set this date for shutting off the present supply and turning the water from the new source into the city mains. A force of 1,000 men has been at work two years building this system, and it contains features different from any other in Massachusetts. It is built on a branch of the Westfield river known as Little river. The water from the upper reservoir in the towns of Blandford and Granville will travel nearly 30 miles before it reaches the city. The upper reservoir will hold 2,478,000,000 gallons of water, and the water flows from it to a diversion dam. This diversion dam is curved, the idea being that the greater will be the pressure the greater the resisting power of the dam. It is a concrete structure about 600' wide, 100' high and 60' wide at the base.

Fast Work on Sherman House.

Fifteen days after the first brick was removed from the walls of the old Sherman House, which started the dismantling of this famous Chicago hostelry, to give way, on the old site at the corner of Clark and Randolph streets, to a modern hotel structure of fourteen stories and two basements, work was commenced on the caissons to support the weight of the new building. This work was begun October 18. It is arduous and difficult, as these caissons, 128 of them all told, must be sunk 120 feet to reach solid rock. Three shifts of 100 men each, for every twenty-four hours, have been kept working day and night since the day work was started, and by December 10th the foundations of this great structure will be completed. Each section of these caissons is five feet in height and six to eight feet in diameter. The shell of the caisson is made of matched maple flooring strengthened with an iron ring. As one section of the shell is sunk level with the surface of the ground, another section is placed on top, and so on till solid rock is touched. Then the caisson is filled with concrete and ready to bear its proportion of the entire weight, calculated to be about 500 tons per caisson. It is estimated that the entire weight of the structure resting on the caissons will be 64,000 tons.

Some 10,000 barrels of Universal cement and 10,000 cubic yards of gravel and sand from the American Sand & Gravel Co. will be used in completing this work, which is under the direction of J. C. Ruettinger, superintendent for John Griffiths & Son, the general contractors. The work is being done with the marvelous rapidity characterizing modern building operations. Eighty-eight caissons have already been finished and the setting of steel for the superstructure was started nearly two weeks ago.

New Concrete Plant in Illinois.

EDINBURG, ILL., Nov. 19.—The Edinburg Cement Tile & Block Co. has accepted the machinery installed by the manufacturers and is about ready to start the plant under full headway to make concrete tile of all sizes, concrete blocks for building purposes, concrete fence posts and other concrete construction work. The officers of the company are: Dr. C. A. Stokes, president; J. L. Morris, vice president; B. A. Turner, secretary; Dr. G. W. Milligan, treasurer; J. R. Harrington, manager.

Concrete for Telegraph Poles.

A patent was issued this month to Floyd Palmer, president and general manager of the Capital Concrete Block & Mixer Co. of Washington, D. C., for a machine to concrete the base of telegraph poles. It is known that a pole only decays at the ground line, while the rest remains as good as when first placed in the ground, and this machine in concreting the base of a telegraph pole prolongs its life many years.

Canadian Cement and Concrete Association.

President Peter Gillespie, of the Canadian Cement and Concrete Association, gave a luncheon at Toronto on November 8 to the executive committee of that organization. The work, both past and future, of the association was fully discussed. Another important topic considered was the place of next meeting. The association received such little consideration from the people of Toronto last winter it was decided to open negotiations with other cities for the 1910 meeting. Every member of the executive committee is very enthusiastic over the work of the association.

Will Make Concrete Blocks.

MANCHESTER, CONN., Nov. 17.—The old Woodland trotting park grounds have been purchased by F. B. Horton, who has begun the work of remodeling the buildings, sinking an artesian well and making other changes to fit it for a concrete manufacturing plant. It will make concrete blocks, slabs and tile by a patented process.

Concrete isn't used much for building homes for workingmen in this country, though Krupp, the German gunmaker, and Cadbury, the English cocoa maker, both of whom have built model villages for their employees, favor concrete for cottages for workmen.

CAISSONS UNDER CONSTRUCTION FOR SHERMAN HOUSE FOUNDATION.

FROM OUR OWN CORRESPONDENTS

BUFFALO AND VICINITY.

BUFFALO, Nov. 19.—Building activity in Buffalo continues. It is announced that a $425,000 brewery will be erected on Fillmore avenue for the Niagara Brewing Co. Contractor Joseph Dunfee, of Syracuse, will build the plant. Several handsome homes are also to be built in this city. Esenwein & Johnson, local architects, have prepared plans for a beautiful new home for E. M. Statler, who will later have an addition built to his hotel here.

"Business is very satisfactory," said a representative of Thorn & Co., cement dealers. "While we are not beginning any unusually large contracts just at present, conditions are quite normal for this time of the year."

"Business is good, prices are good, and the outlook is good," is the way M. A. Reeb, dealer in builders' supplies, summed up the local situation.

Members of the Buffalo Cement Co., which had an interesting exhibit at the Buffalo Industrial Exposition, are pleased with the results of the advertising campaign which they conducted at the show. Demonstrations showing the manufacture of cement were made and pictures showing the large plant were also exhibited in the booth.

The Buffalo Dredging Co. was the lowest bidder, at $110,000, for the work of changing the outlet of the city trunk sewer under Black Rock harbor in this city.

G. Morton Wolfe, a Buffalo architect, has prepared plans for a reinforced concrete plant to be built for the Beaver Manufacturing Co., in this city. The building will be 90 by 280 feet, and two stories high. In addition to this a power house will be built.

The following officers have been elected by the Buffalo Chapter of the American Institute of Architects: President, H. Osgood Holland; first vice-president, Franklin J. Kidd; second vice-president, C. Paxton Cody, Erie, Pa.; secretary, Ellicott R. Colson; treasurer, Edward G. Henrich.

Louis F. Weyand and others have bought some valuable property in South Buffalo and will erect a number of up-to-date residences. Two new streets will be laid out and these will have cement walks, asphalt pavement and other improvements.

It is reported that L. D. Shreve, a wealthy chair manufacturer of Union City, Pa., will build a $300,000 concrete factory in that city.

The Hygeia Refrigerating Co., of Elmira, N. Y., has completed a new 8-story warehouse made entirely of reinforced concrete. The Turner Construction Co., of New York, did the concrete work.

Atlas Portland cement and Reliance wood fibre plaster was exhibited by the Fred H. Snyder Co. at the recent Industrial Exposition at Rochester, N. Y.

Crossett & Lloyd, of Binghamton, N. Y., have secured the contract to erect a reinforced concrete vault for the First National bank of Hopbottom, Pa. The vault will be eight by ten feet, by twenty-one feet high.

John J. Regan and John Calnan recently secured contracts to build cement walks in Rochester, N. Y.

Arrangements are being made for the construction of the Oneonta, N. Y., Consumers' Brewing Co. plant. A substantial building of concrete and brick will be built. It is stated by those interested in the project that the plant will cost about $75,000.

Building permits in Rochester, N. Y., last month totaled up many thousand dollars in excess of any other October in the history of that city, the exact figure values being $782,344, an increase of $209,367 over October, 1908, when the total was $572,967.

The New York state canal board has approved plans for barge canal contract No. 44, for the construction of 7.10 miles of canal on Mud Creek, Oneida county, at an estimated cost of $1,926,093. When Mr. Stephens, the state superintendent of public works at Albany, awards barge canal contracts, bids for which will be received by him on December 1st, over $40,000,000 worth of work will be under way. The contracts to be awarded are for constructing lock No. 2, at Fort Edward, $232,908; constructing in the Hudson river, below Mechanicsville, lock No. 3, $270,675; finishing two locks at Waterford, $372,000; dredging a channel in the Hudson river at the canal outlet, $1,439,933, and providing winches for the movable dam on the canal, $72,000.

PITTSBURG.

PITTSBURG, PA., Nov. 19.—Despite the fact that October and November are as a rule rather wet and disagreeable in Pittsburg and western Pennsylvania, the weather this fall has been so unusually good that building conditions have been considered perfect, and operations have gone forward with just about the same speed, and in fully as great volume as was the case during the entire summer.

The Jones & Laughlin Steel Co. has awarded a contract for the construction of a dock, wharf and ice breakers at its immense new plant twenty miles below Pittsburg to the Enterprise Contracting Co. This contract will amount to about $25,000, and calls for the use of considerable concrete in the construction of the foundations, etc.

A. L. Anderson & Bros., of Altoona, have been awarded the contract for the construction of the proposed new Hollidaysburg & Bedford railroad, and will start work at once, and continue throughout the greater part of the winter. This road is to be a branch line of the Pennsylvania railroad, and will open up a new district. It will be about fifteen miles in length, and of single track. Construction will be particularly heavy on account of the rough mountainous country through which it will run, and a large amount of cement and concrete will be used.

A contract for the construction of a new viaduct across G street, Hamilton, Ohio, has been awarded to the Capital Construction Co., of Columbus, Ohio, at a price of $12,000. The structure will be entirely of concrete and steel.

The new Fairmont & Northern Traction Co.'s electric line in West Virginia is to be constructed by the Talbott Bros., of Fairmont, W. Va., and will be placed under way immediately on the Fairview end. There will be a large amount of concrete work.

The St. Clair Supply Co., Greensburg, Pa., will furnish all the cement, sand, gravel, etc., that will be used by the Millard Construction Co., of Philadelphia, on its immense contract at Greensburg, Pa., for the Pennsylvania railroad. This contract is one of the largest awarded to a supply company in this part of the state in a long time, and specifies the delivery of considerably over one thousand cars of materials. The contract is for the removal of the tunnel at Greensburg, on the main line of the Pennsylvania, elevating the tracks for a considerable distance, and for the construction of a four-track road instead of the double track line used at present. Grade crossings will be abolished, and all streets and roads taken under the railroad through concrete arches. The work will cost approximately $900,000.

The Clymer Water Co., Indiana county, Pa., is about ready to receive bids for the construction of its new sedimentation basin at its filtration plant. This basin will be built entirely of reinforced concrete, and will cost, according to the engineer's estimate, about $15,000. It will be 65 feet in length, 28 feet in width and 14 feet in depth. The outer walls will all be constructed of 15-inch reinforced concrete; interior walls 12-inch reinforced concrete, and the floor will be of solid concrete, six inches in thickness.

The state board of health, Harrisburg, Pa., has approved the plans for the proposed new sewage disposal plant and a new sewer system for the boroughs of Tarentum and Brackenridge, Pa., and it is expected construction will be started early in the spring. The plant will be entirely of concrete.

Several large contracts for county road construction have been awarded by the Allegheny county commissioners, as follows: Henry Bolar, McKeesport, Lock No. 3 and Elkhorn road at $53,327; Greensburg pike to the Collins-Gordon Contracting Co., Pittsburg, at $88,361; connecting road between Braddock and Greensburg pike, to the Collins-Gordon Contracting Co., at $22,795. The same concern also received the award for the construction of the Dravosburg road at $36,092. The McLaughlin Contracting Co., Pittsburg, also received the contract for the construction of the Noblestown extension No. 2. All of these roads will be built of brick, laid on a concrete base. There will also be a large number of concrete arches and culverts to be built.

The Modern Construction Co., Fremont, Ohio, has received the award for the construction of the new Albright bridge near Bucyrus, Ohio. It will be built of reinforced concrete and will have a concrete floor. It is to be a single span, 90 feet in length, with a 16-foot roadway.

R. D. Hunter & Co., Beaver, Pa., have secured the contract for the construction of the new extension of the Duquesne & Dravosburg street railway company's line from Duquesne through Mifflin township, three miles in length. The engineers for the road are Douglass & McKnight, of Pittsburg, Pa. The concrete and cement work will all be done by the general contractors as soon as the grading has progressed sufficiently.

PHILADELPHIA.

PHILADELPHIA, Nov. 18.—For this season of the year the consumption of cement has been enormous. The Portland cement manufacturers are all nearly unanimous in reporting that their plants are running on full time, a condition which is credited to the remarkably warm weather.

The laying of concrete foundations for street paving and large contracts for sewers, as well as bridges and concrete walls for the elevated railroads, has exceeded all records of previous years.

Building work for which permits were actually issued during the month of October was $2,892,490, which was $157,950 in excess of the preceding month, and, with the exception of the same month in 1901 and 1906, was the largest for any October in the history of the bureau.

The American Cement Co. reports business very good. The "Giant Portland Cement" which is manufactured by this company is used in the 10-story reinforced concrete People's Trust building now being erected, and was also used in the new reinforced concrete Federal building on Washington avenue. This same cement is used in the concrete foundation work in the paving of Market street from Front to Fifteenth street.

H. J. McLaughlin, assistant manager of the National Fireproofing Co., reports that they are very busy furnishing the hollow tile for the many large contracts which they have under way.

Architect Guy King is preparing plans for a 20-story office building to be centrally located in the city. All rooms are to be fitted up exclusively for physicians and dentists, with the exception of the first floor, which will be occupied by a drug store. The plans provide for a brick, stone and terra cotta building 100'x130'. Estimated cost, $500,000.

Sauer & Hahn, architects, have completed plans for the large manufacturing building which will be known as the Renalice building, to be located at Twentieth and Arch streets. The structure will be 60'x163' and 10 stories high. It is to be of reinforced concrete construction with interior of granite, brick and terra cotta. Estimated cost, $300,000.

Wm. Steele & Sons. Co. have started work on the large manufacturing building at Third and New streets. D. Knickerbocker Boyd has provided in the plans of this structure for a 6-story reinforced concrete building 79'x82' at a cost of $80,000.

Thomas M. Seeds, Jr., has been awarded the contract for the $100,000 residence of C. Howard Clark, to be erected near Wayne. The house will contain fifty rooms and will be built of stone. The plans were designed by Charles Barton Keen.

Robert A. Patton has recently been granted permits for the erection of twenty-four 2-story stone houses at Fifty-fifth and Catharine streets. Estimated cost, $60,000.

Horace Trumbauer has awarded the contract to Samuel Harting for the erection of a residence at Wissahickon avenue and Horter street. Estimated cost, $25,000.

The Jarden Lithographing Co. is clearing ground on Eleventh street above Vine for the construction of a large reinforced concrete building to cost about $50,000.

John Megraw has been granted permits for the erection of nine 3-story dwellings at Fifty-third and Baltimore avenue. Estimated cost, $20,000.

William H. Eddleman has been awarded the contract for the building of a residence and stable for Edward H. Morris at Lancaster and Wynnefield avenues. Estimated cost, $30,000.

Samuel H. Levin has been awarded a contract for building thirteen dwellings in Germantown at a cost of $33,000.

H. E. Hess has started work on the construction of 128 2-story houses in the northeastern section of the city. Estimated cost, $267,000.

F. C. Michaelson will erect fifty-nine dwellings on Franklin and Eighth streets between Luzerne and Pike, at a cost of about $92,000.

The Frank Mark Construction Co. has obtained a charter under the Pennsylvania laws. The capital is $20,000.

Diamond City Brick Co., Wilkesbarre, Pa., has incorporated. Capital, $60,000.

H. F. Dech Building and Construction Co., Easton, Pa., has obtained a charter. Capital, $5,000.

Pittsburg Engineering Construction Co. of Pittsburg, has been incorporated. Capital, $10,000.

The Suspension Steel Concrete Co., Wilmington, Del., has obtained a charter under the Delaware state laws. Capital, $3,500,000.

Edwin F. Durang & Son, architects, Philadelphia, have obtained a charter under the Pennsylvania state laws. Capital, $5,000.

Spring Creek Limestone Co., Lebanon, Pa., has been chartered under Pennsylvania laws; capital, $5,000.

BALTIMORE.

BALTIMORE, MD., Nov. 18.—There are strong indications that there will be an unusually large amount of building done in this city during the coming winter, as outside of the regular routine work, the Pennsylvania railroad is going to erect a new union station on the site of the present building, to cost over $500,000.

As a result of several big prospective jobs the local cement firms are looking forward to an increased business, which in the end may help swell the extremely low prices which have held sway here for so many months. Market conditions here have remained about the same as they have been for the past two months. Since the great slashing of prices and the war among the different dealers things have been rather quiet.

There has been no decided developments in the construction of the new $250,000 cement plant of the Security Cement & Lime Co. at Security, Md. The foundations of the structure are in course of construction and the actual work is well under way. The officers of the company now are: A. W. Paige, president; L. A. Cover, vice-president and treasurer; and Harry B. Warner, secretary and sales manager. This company is also erecting a number of new lime kilns at Martinsburg, W. Va., and when completed the plant will have a capacity of 2,000 barrels a day. The work of construction will be rushed as fast as possible.

Building operations are going on steadily and a considerable amount of cement is used. In fact, several builders have recently begun to use cement in the construction of 2-story houses, which is one of the most important factors in the building line in this city. Since the first of the year over 2,000 brick houses of this type have been built, and nearly a hundred more are now under way. These are entirely of concrete construction.

A surprise was sprung on local builders a few days ago, when it was announced that Dr. Emerson had purchased the site of the old Baltimore & Ohio railroad building which was destroyed during the big fire of 1904, for the purpose of erecting a magnificent hotel. Plans are being rushed by Architect Joseph Evans Sperry. They call for a 15-story fireproof structure with the latest improvements for a modern hotel. The building will have a large roof garden. It is expected it will be ready for occupancy within a year.

J. Henry Miller, who was awarded the contract for the construction of the new 15-story addition and improvements on the Fidelity building, has started the work on the foundations and is pushing it night and day. The exterior walls will be made of Maryland granite and the interior will be steel and concrete. The building will be equipped with six plunger elevators and other conveniences of a modern office structure.

John Cowan, the builder who was awarded the contract for the construction of a large addition and improvements on the Woman's hospital of Maryland, at Lafayette avenue and John street, is rushing the work. Plans for the building were made by Architect Joseph Evans Sperry. The improvements will cost about $75,000.

The monthly report of Building Inspector Preston for October shows a decided increase in the cost of improvements over the month previous. The estimated cost of new improvements and additions, with the 20 per cent added for undervaluation, is $1,108,730.40. Of this amount, the greater part was expended for 2-story houses.

TOLEDO AND NORTHWESTERN OHIO.

TOLEDO, O., Nov. 18.—At this writing the outlook for winter work in any line of construction work is very poor, but there is some consolation in the fact that building statistics for the year show an increase of 55 per cent over last year, these statistics including the first ten months of both years. For October an increase of only 15 per cent is reported.

Contracts are to be awarded shortly for a new building to be erected by C. M. Spitzer at the corner of Madison and Tenth street. The plans were drawn by Architects Bacon & Huber. The structure will be four stories in height, and will be of reinforced concrete construction. Concrete foundations will be used, with a combination tile and concrete fireproofing for partitions, etc.

Architects Langdon & Hohly are taking figures for a small concrete and brick Masonic temple to be erected in West Toledo, J. W. Matz is preparing plans for an orphanage near Flat Rock, Ohio, of the same construction, and Sidney Aftel is preparing plans for a country residence for John Huebner in which concrete will be used freely.

One of the first concrete store buildings in northwestern Ohio is being erected by Samuel Hildebrand on Lower Broadway. The foundations, walls and partitions are of poured concrete, the only wood used being in finish and partitions for the upper story. While similar construction is frequently used for larger structures, this is the first time it has been given a thorough trial in a small building. Mr. Hildebrand is well pleased with the results attained thus far, both as to cost and appearance, and believes that the fact of slow burning, if not absolutely fireproof, construction will add to the renting features of the structure.

Municipal concrete sidewalk work has been finished for the year, the total amount expended running between two and three times as much as during any previous year. By laying walks as cheaply and in some instances cheaper than under private contract, guaranteeing them against cracking for two years, and giving the property owner the option of cash or long-time payments, the city has radically changed the sidewalk business in Toledo. Contracts are awarded in four separate sections, the city only assuming the attitude of superintendent and paymaster. On the other hand, the contractors, being assured of a large amount of work, can afford to do it cheaper and at the same time use the right materials, as unless they do so they run a good chance of being obliged to do the work all over at the order of the sidewalk inspector.

The Sanford Concrete Machinery Co. has opened a display and salesroom in the Zenobia building on Jefferson avenue.

The Atlas Cement Building Block Co., A. Weiler, manager, reports the best season since the organization of the company. It makes a specialty of cellar floor blocks and is also one of the pioneers in manufacturing blocks especially designed for foundation and partition work.

The concrete plant of Knopp Bros., 1415 Oak street, was visited one night this month by some yeggmen, who, although they obtained only about twenty-five stamped envelopes, did a lot of damage to the safe and other furniture. The job was evidently the work of amateurs. President Knopp reports a good year in concrete work, especially in cement sidewalks.

The Concrete Supply Co. is the name of a concern which has recently been incorporated and which, according to its plans, expects to become an important factor in supplying concrete sand and gravel to Detroit, Toledo and adjacent territory. The capital for the company will be furnish by Toledo men.

The Toledo, Angola and Western railroad, which is identical in interests with the Toledo Stone & Glass Sand Co., is offering free manufacturing sites along the line of its railroad directly west of Toledo. The T. A. & W. is a small line running from Toledo to Silica, Ohio, a distance of ten miles. The road was built solely for the purpose of developing the immense sand, gravel and stone deposits at that point. The road connects with the Lake Shore at the edge of Toledo—the junction being known as Vulcan—where it also taps the Toledo Terminal railroad, which gives it direct connection with every line entering the city. The company pays special attention to crushed stone, it having a well stationed crushing plant, and on account of its close proximity to Toledo has been one of the chief supply sources of this city, much of its product being handled locally by the Toledo Builders' Supply Co.

P. J. Degnan, of the Toledo Builders' Supply Co., officiated on the welcoming committee which had in charge the Toledo visit of T. P. O'Connor, the noted Irish leader who is in this country in the interests of Irish home rule.

The city council of Bellefontaine has authorized an issue of $15,000 bonds for the preliminary work initiatory to installing a complete sewer system in that city.

The Asphalt Block Pavement Co. was well represented at the hymeneal altar during the past month, when two of its executive officers, Mark Dickey and C. B. Luck, became benedicts. Mr. Dickey's honeymoon trip was interrupted by being called to Toledo to sign up some contracts for new business, after which he completed his trip.

The Buckeye Builders' Supply Co. reports, through Arthur Munz, manager, a good business for the entire season but that trade has fallen off unusually early this fall.

Lon Reilly, representative of the National Paving Brick Manufacturers' Association in northern Ohio and Michigan territory, has entered the newspaper field as part owner of the Globe, a weekly newspaper published in this city. It will not interfere with his duties to the organization which he represents.

Engineers DeVore and McGormley have prepared plans for a reinforced concrete factory building which is to be erected in Findlay, Ohio, by the Buckeye Traction Ditcher Co. of that city.

BIRMINGHAM.

BIRMINGHAM, ALA., Nov. 18.—Although the season is far advanced, conditions in the line of building materials are very good. This autumn, as in every other year, contractors have to meet the difficulty of securing workingmen, as labor is very scarce, most of the unskilled negroes having gone to the mines, where wages have been almost doubled.

The Birmingham Land & Brick Co. is furnishing most of the materials for the *Age-Herald* building, which is rapidly nearing completion, and have also contracted to supply everything for the negro college at Mason City, Ala. In addition to this the company is also furnishing materials for many residences in the city, among which the Sanders house on Mountain Terrace, and the Tomlison place on Crescent Heights are worthy of mention.

The Southern Bitulithic Co. is still working in New Orleans, and during the last month it has secured contracts for work for 35,000 yards in Memphis, Tenn.; 40,000 yards in Ashland, Ky., and for large amounts in Shreveport, La., Montgomery, Ala., and Baton Rouge, La. The company will soon move its Birmingham plant to Meridian, Miss., where a great deal of work is to be done.

The Brownell Mantel & Tile Co. has had a very prosperous month. Among its tiling jobs, the ones done are those at the Pearson and Dimmick buildings, the office of the Avondale Lamp Co., and the First National bank of LaFayette, Ala.

W. W. Snead has the following to say: "Business this month has been all that we could expect. We have taken some nice orders, the most important of which was for sand and cement to be used in the Ensley street paving job. Another nice contract was closed with the Cullman Coke & Coal Co., which firm is building a new railroad to open up a vast supply of coal. Of course we're not making enough money at present to buy a touring car, but we've always got plenty to 'set the boys up' to a cigar."

Dun & Lallande, concrete contractors, are engaged in building concrete bridges and culverts on the line of the Agewood Electric Railway Co. They are also doing street paving and other work in twenty New Haven blocks.

One of the nicest jobs of plastering done for a long time in this district is that on a building at Bessemer by the firm of George W. Harrison & Son.

The Woodlawn Building Supply Co., a very recent comer, has one of the largest building supply stores in the state. They do a great amount of retail business.

C. M. Burkhalter, the concrete contractor, is so overcrowded, that he has not bid upon anything for the last two months and is even trying to get rid of some of his work.

J. H. Hoffman, a high official of the Armour Packing Co., came to Birmingham during the last month to complete arrangements for the erection of a modern refrigerating plant. "The proposed building," said Mr. Hoffman, "will be four stories high and modern in every respect. It will be one of the greatest buildings of its kind in the South."

The present board of revenue of Jefferson county is carrying out its campaign pledge of improving the roads and building new bridges. Many old wooden bridges are being torn down and replaced with modern concrete structures. Job Going, president of the board, had the following to say: "Yes, the board approves of concrete bridges, because they are better than wood which decays, and iron which rusts, while concrete grows harder and stronger as it ages."

Announcement has been made that the Jelks-Henderson Building Supply Co., of Atlanta, Ga., will soon move to Birmingham and conduct a large business here.

The Southern Tile Co., of this city, has just completed the tiling of the court house at Vicksburg, Miss.

C. E. Wald, a well-known concrete contractor, has secured the work of laying fifteen blocks of sewer in Gadsden, Ala.

The Alabama Crushed Stone Co. is filling a big contract with the Allen-Krebs Co.

A large fire did serious damage to the store of the Bessemer Supply Co., but the place is rapidly being put in shape again, and the company will soon resume business.

The Jennings Contracting Co. has secured the work of installing a new sewer system at Orlando, La.

The city of West End has awarded contracts for paving on Jefferson, Charles, Grady and Pearl streets, and St. Charles, First and Cotton avenues. The council has made assessments on the citizens to the amount of $101,000 and as a result many complaints and protests have been made, which will be heard on December 9, the next meeting of the council.

LOUISVILLE.

LOUISVILLE, KY., Nov. 16.—Though in some lines the volume of business is not as great as it might be, inquiries and prospects are so numerous and present trade so satisfactory that the tone is more than ordinarily cheerful. Little new work will be undertaken this winter, but from the number of buildings talked of there will be a lot stirring in 1910.

The demand for cement is unusually good. In the brick and tile line trade is unusually brisk, and sewer pipe is being sold in volume. A great deal of reinforced concrete work is being done, and in general the situation is fully up to expectations.

C. M. Timmons, sales manager of the Kosmos Portland Cement Co., says they are so busy they cannot fill their orders, though the mill at Komosdale is running day and night and turning out the full 800-barrel daily capacity. Dealers and contractors and all branches of trade are buying freely, and prices have advanced from 10 to 20 cents a barrel, but Mr. Timmons thinks they will go still higher. The company has secured the contract for the cement to be used in a big bank building now going up in Memphis. It was also awarded the contract for the cement to be used by the J. A. Duff Construction Co. in sewer work that organization is doing here.

Henry Gray, of J. B. Speed & Co., says business is fair, though the lateness of the season makes the demand for cement smaller than it was. The outlook is favorable, however, and next year he thinks will be a banner one in the consumption of cement. Just now he says there is a tendency to take too much advantage of the temporary increase in the demand by raising prices, a step which in his opinion will discourage consumption. The mill at Speed's will run this month and next, but will probably be closed during January and February to allow of overhauling and repairs.

George F. Meldrum, of the Utica Lime Co., says the demand for cement and lime has been aided by the fine weather of the past few weeks, which has extended the building season beyond the point to which Louisville has been accustomed. Manufacturers are talking higher prices, and he is inclined to believe an increased scale will go into effect next year.

J. B. Ohligschlager, of the National Concrete Construction Co., says things are going pretty well with his company. They are working principally on the plant of the Fetter Lighting Co., to which reference has been already made, and the addition on the boiler-house of the Standard Sanitary Manufacturing Co. This is of brick and reinforced concrete. They are also building a bridge at Seatonville, Ky., on the outskirts of this county, across Floyd's Fork. It is of steel and concrete and has an 86-foot span. They are putting up some concrete abutments for the Louisville & Nashville Railroad at Nashville. Altogether the outlook is for lots of building next year, Mr. Ohligschlager said.

The Central Concrete Construction Co. has been doing a good business all the month, Mr. Wintersmith said. It is building three residences, one of which has a rather unusual feature. It is to be of brown cement blocks. The color is secured by the use of mineral matter, and the effect is very pretty. The house is to be a bungalow, dwellings of that kind, built of concrete or stucco, having proved popular here. Prospects are good, and 1910 will be a fine year, Mr. Wintersmith predicts.

Vice-president Edward I. Streicher, of the National Roofing & Supply Co., says the concrete construction business is fine. Among the work the company is doing is that on the Robertson stores at Fourth and York streets, where the company is putting in the reinforced concrete floors, steps, etc., and the De Soto store building at Eighth and Market streets, where floors, sidewalks, and lighting supports are of granitoid. It also has the concrete work at the Masonic Widows' and Orphans' Home, where several new buildings are being erected.

Contractor R. Ianka is putting up several cottages at Twentieth and Bank streets, and is making the walls of solid concrete. The National has the concrete work. It is also doing some roofing work at Shelbyville, and is waterproofing the boiler-house of the Standard Sanitary Co. Henry B. Snyder, formerly president and treasurer of the company, is now president; Mr. Streicher, who was formerly vice-president, is now vice-president and treasurer, and William J. Reilly is the new secretary.

The Kentucky Wall Plaster Co. reports city trade as rather quiet, but that they are making good shipments, some going as far away as Illinois and Alabama. Prospects for the rest of the year are pretty good, and it looks as if 1910 will develop a good trade. B. J. Campbell, Jr., president of the company, is one of the new city fathers, having been elected an alderman and sworn in with the rest of them a few days ago.

Samuel L. Robertson, a well-known local concrete contractor, has been elected a member of the state legislature from the fifty-first district. He ran as a democrat. He is the son of A. S. Robertson, a pioneer contractor. In addition to landing as a lawmaker, Mr. Robertson has been doing a lot of concrete work. He was awarded the contract at the new country club, and has started operations there. This is a rather sizable contract.

Business with the Ohio River Sand Co. is pretty good, it is reported, the weather having helped some in this respect. Sewer contractors are still using the bulk of the output of the company, which has been hampered in getting out sand on account of low water.

Burrell & Waler report business as first rate, and improving right along. Sewer pipe is in good demand, and tiling is going pretty well too. The outlook is favorable, Mr. Burrell said, and he thinks next spring will see a largely increased demand, though this year has been a great improvement over last.

Announcement is made that the work of putting the wires of the various public service corporations underground in the congested business district is practically completed. Most of the conduits are of vitrified tiling, though some of them are of fibrous material set in concrete.

K. W. Grahn, president of the Louisville Fire Brick Co., says fire brick is selling more readily all over the country, and all lines are now ordering freely. His plant, which during the hard times ran one-half capacity, is now turning out two-thirds of the full amount, with prospects for even better business. Prices, however, have not changed any, Mr. Grahn said.

The Kentucky Unit Brick & Tile Co., which is to build a big plant here, has announced that details will be given out in a few weeks.

S. F. Troxell says there is a lot of roofing being done. He has the contract for the Robertson stores, the Bradford mills and the Walnut street theater. His brother, who handles the concrete work, is also very busy. He looks for a big year in 1910.

The Snead Manufacturing Building Co. has been capitalized with a stock of $130,000. The incorporators are A. P. Humphrey and James C. Murphy, the latter an architect, at Louisville, and Udolpho Snead, of New York. A plant to cost $100,000 will be built on Market street below Eighth, the purpose of which will be to supply power to small manufacturing concerns. The building will be ready for occupancy next year. A similar building is reported to be projected by the Underwriters' Realty Co. on a site recently purchased at Fifth and Walnut streets.

Kentucky banks are getting the building habit. The City National bank of Paducah is to erect a 10-story building there at a cost of $200,000, and the Farmers' State bank, at Corydon, is to erect its own building, which will probably be of reinforced concrete.

A new high school building will be erected by the city of Jeffersonville, Ind. Arthur Loomis, of Louisville, is the architect. The building will cost between $75,000 and $100,000, and will be of brick and concrete. The floors will be reinforced.

The Louisville Sewer Pipe Co. has been incorporated with a capital stock of $5,000. The company will buy and sell all kinds of building material. Its incorporators are R. E. Brandeis, L. Frankel and F. B. Moses.

Jacob Bornstein, the local contractor who was injured by a premature explosion at Bowling Green, has been brought home. His foot was badly hurt.

The Government dam across the Ohio river at Louisville, which will give a nine-foot stage between Louisville and Madison, Ind., has been practically completed, and the wickets are nearly all in place. The dam cost about $250,000 and was built largely of concrete.

W. C. Nones has resigned as chairman of the sewerage commission, owing to ill-health, and has been succeeded by Peter Lee Atherton, who retired about a year ago for the same reason. Mr. Nones will continue to be a member of the commission. The work on the sewers will last for about three years, Chief Engineer Breed told the correspondent of ROCK PRODUCTS the southern outfall sewer, the largest link in the chain, will be finished about July 1, 1910.

The Walnut street theater, which is rapidly going up, is attracting a lot of attention. McDonald & Dodd are the architects, and Bailey & Koerner the contractors. It will be finished February 15, 1910. Its cost will be $125,000. It is built of brick and stone. The floors will be of reinforced concrete. The theater will be modern and fire-proof, according to those interested in it. It is situated just west of the Seelbach hotel.

Word has reached here that George W. Foster, who was one of the most noted contractors in the country, died in Cincinnati November 9 at the age of 79. One of his most renowned pieces of work was the canal around the falls of the Ohio at Louisville.

R. C. Morris, a well known Louisville cement man, has been awarded a patent for a form or mold for concrete receptacles. He makes a specialty of concrete blocks.

ST. LOUIS.

ST. LOUIS, MO., Nov. 18.—In the city proper, building operations are smaller than for the corresponding month last year, but, on the other hand, in the section for which St. Louis is the distributing market, building of all classes has been much greater than in the same period in 1908. This is why manufacturers and dealers in material have been very busy and the outlook is favorable for a fair business right through the winter. A large part of the trade lies in a section of mild, open winters. The prosperous condition of farmers in general is favorable to building operations in many towns and small cities.

Work has begun in earnest on the municipal free bridge, and in a few days the first caisson, which will be sunk on the eastern bank of the Mississippi river, will be completed. It is constructed of steel bases and timber. Barges have been hauled down from the McKinley bridge, which was constructed by the same contractors, the Missouri Valley Bridge & Iron Co., which will build the piers of the new bridge. Workshops, superintendents' offices and a railway switch have been constructed on the site at East St. Louis for the approach to the bridge. Brenneke & Fay, resident engineers for Boller & Hodge, of New York, and a superintendent and a foreman are on the ground supervising the work.

The Engineers' Club of St. Louis was recently the guest of President E. E. Wall, assistant water commissioner of the city, on an automobile excursion to the Chain of Rocks waterworks. The engineers studied the coagulating plant and the method of steel pile driving used by the Empire Construction Co., of Chicago, which is driving 1,200 tons of steel piling to protect the settling basins from the river. Thomas Lynch, president, and M. A. Cluxtion acted as hosts and furnished refreshments to the visitors.

Bids have been asked by the board of public improvements for the interior finishing of the municipal courts building, to be opened December 3. It is planned to let the contract at this time, so the interior work may be done as the exterior walls are erected. This interior work will include marble slabs, tile floors, heating apparatus, lighting fixtures, plumbing, etc. The estimate of cost is $246,000.

A deal is very nearly completed for the acquirement by a local syndicate of property at the southeast corner of Seventh and Olive streets and for the construction of a large mercantile and office building there. The deal, it is estimated, will represent an investment of more than $2,000,000.

The St. Louis Provident Association will soon begin the construction of a $50,000 home at No. 2221 Locust street. The plans call for a 3-story brick building 50x150 feet, and containing fifty rooms.

A bill has been introduced in the municipal assembly to extend the height limit of buildings from 206 to 250 feet. If this is passed, it means that 20-story structures may be erected. At present there are no sky-scrapers in St. Louis over 18 stories, the highest of which—the Pierce—is 206 feet from the ground to the tip of the roof. It is rumored that this change is prompted by parties who desire to erect a 20-story building on one of the most prominent corners in the retail district.

H. M. Duck, treasurer of the Meramec Portland Cement & Material Co., states that Barrett & Co., of Cincinnati, have built a new barge for the company and that it is making deliveries on its sand contract of 400,000 yards with the M. K. & T. railroad at the rate of sixty cars a day. Owing to the resignation of former vice-president and general manager Boyd, J. A. Daly, the president of the company, is now the managing officer.

E. S. Healey, secretary and treasurer of the Glencoe Lime & Cement Co., says the company is making changes and improvements to facilitate business at its various plants. All the kilns are being operated.

E. W. Savage, of the Acme Cement & Plaster Co., states that while there is some falling off in the demand for forward delivery, owing to the approach of winter, in the territory where building operations are suspended on account of the weather, on the other hand it continues unabated in the South and on the West coast. The company has been sold ahead ever since last summer, though running all its plants to full capacity. Prices are holding firm.

According to Sales Manager Craney, of the cement department of the Union Sand & Material Co., there are no stocks of cement being carried in store by the leading manufacturers of the middle West, and the company would be warranted in running its plants during the winter to prepare for deliveries in the spring. Mr. Craney further stated that relatively the demand in this section had been far better adjusted to production than has been the case in the East. He has had prepared a large map showing the location of all the cement manufacturers in the United States, and indicating the zones on which these companies mainly rely for business.

KANSAS CITY AND VICINITY.

KANSAS CITY, MO., Nov. 18.—For the first nine months of this year there were permits issued by the superintendents of buildings of this city for over $2,500,000 worth more buildings than for the same period of last year, the figures for the nine months being $10,806,443. It should be remembered that builders in Kansas City must pay for permits in accordance with the estimated cost of the buildings to be erected, so it seems quite safe to say that the real cost of the building and generally exceeds the estimate made when the building permit is taken out.

In Kansas City, Kan., there is to be a new city hall, workhouse and jail, etc., as the people voted bonds for this purpose. The city hall is to cost $200,000.

Prices of Portland cement are holding firm. A great deal of it is moving out of the plants, and the reports indicate there is little stock in reserve, the product going out about as fast as it is made.

The Lumbermen's Portland Cement Co. has not yet begun to operate its brick plant, which has been ready and waiting for several months for the arrival of the engines for the big power plant. This machinery is reported to be all on the ground, and the plant will begin to move as soon as the power equipment is installed. This plant is located at Carlyle, Kan., has plenty of gas of its own, and will be a steady producer when it is started.

E. C. Johnson, of New London, Conn., is soon to begin the erection of a 4-story building on his lots at 1717-19 Baltimore avenue.

John W. McKecknie is preparing plans for a 10-story office and church building, to be erected by the Grand Avenue Methodist Episcopal congregation on its property at the southeast corner of Ninth and Grand avenue, directly across the street from the Federal building.

The Kansas City Stock Yards Co. is having plans prepared for another addition to its horse and mule market. The new building, which is to be occupied by Walcott, Beers & Grant, will be of brick, and will be 200x180 feet in size.

Howard J. Vrooman has taken out a permit for the construction of a twelve-apartment flat building on the southwest corner of Linwood boulevard and Woodland avenue, to cost $25,000.

Work was begun last week on the excavation for the big newspaper building to be erected by William R. Nelson, for the occupancy of the Kansas City Star. This is to be a large building, planned especially for newspaper work, and will be mainly of concrete construction.

E. S. Johnson, a contractor at 3246 Penn street, has been awarded the contract for a $12,000 flat building for F. M. Calhoun, to be built at 3932-34 Bell street.

A brick building is under course of construction on the northeast corner of Seventh and Walnut streets, to be known as the Midland Annex. It will cost about $40,000. It will be three stories high. The first story will be used for stores and the balance of the building for hotel purposes.

Ira Z. Mason, a lumber manufacturer of Frontero, Mexico, has been investigating this city with a view to making it his chief distributing point. He has secured an option on a $600,000 tract of land lying just north of Kansas City, Kas., facing on the Missouri river, and he will probably expend $2,500,000 there within the next year putting in a mahogany veneer mill, rubber goods factory, chocolate factory, warehouses, etc.

E. F. Mulligan has the contract for the erection of a $40,000 studio building at Fifteenth and Highland for the Thos. Cusack Co.

The Rocky Ford Power & Dam Co., of Manhattan, Kas., has begun constructing concrete poles on which wires are to be strung to carry the power generated at Rocky Ford, Colo., to Manhattan. The poles weigh two tons each, and are 35 feet long and 18 inches square. The center reinforcement is a 4-inch gas pipe, and a twisted iron rod is also used to reinforce each corner. Twenty-five of these poles will be set to the mile.

The Fremont Granite Brick Co., of Fremont, Neb., which recently suffered a severe fire loss in its plant, is progressing rapidly with the work of rebuilding.

The Meek Brick & Tile Co., which maintains its main office in Chillicothe, Mo., has had a tract surveyed and will soon begin the construction of a brick and tile plant at Utica, Mo., to have a capacity of 50,000 brick per day.

The First Baptist congregation of Walnut Ridge, Ark., is having a concrete foundation built for its edifice. E. B. Phillips, of Poplar Bluff, Mo., is doing the work.

The Aransas Pass Pressed Brick & Shingle Co. has been incorporated in Aransas Pass, Tex., with a capital of $2,500, to make cement brick, shingles, etc. Henry Brook is president.

A. Ketcham is about to begin the erection of a large 3-story reinforced concrete office building at Third and Robinson streets, in Oklahoma City, Okla. The first floor will be used as a business house and the two upper floors for a hotel.

The Dalhart Concrete Block Co. is reported to have been organized in Dalhart, Tex., with a capital stock of $13,500 by T. R. Day and others.

The Amarillo Stone Mfg. Co. has been incorporated in Amarillo, Texas, with a capital stock of $20,000, by H. A. Nobles, H. R. Morrow and others.

Henry Hesse, of the Hesse Building Material Co., St. Joseph, Mo., agent for the Sunflower brand of cement, has been in the city this week, paying a visit to the head office.

W. H. Smith, who has been a traveling salesman for the Kansas City Portland cement plant of the Union Sand & Material Co., has become assistant sales manager in the office in this city.

Frederick E. Paulson, Western manager of traffic and sales for the Lehigh Portland Cement Co., is paying Kansas City a visit this week, and says he

The Ash Grove Portland Cement Co. is furnishing the cement used in constructing the foundation for the stockyards exchange building, which is to be the largest office structure in Kansas City.

H. M. Meriwether is about to do a considerable amount of concrete work in the way of sewer building on the made land he has been improving along the Missouri river front. He is using the Ash Grove brand.

R. N. Soper, who has been city man for the Ash Grove Lime & Portland Cement Co., has resigned to accept a similar position with the Edison Portland Cement Co. in New York city.

THE NORTHWEST.

MINNEAPOLIS, MINN., Nov. 18.—The building season has been an active one and, while the approach of fall has lessened the activity somewhat, it is still quite lively, with a number of good-sized jobs under way. Materials in general are tending to higher prices, although builders' supplies include a number of articles which are very difficult to advance owing to the peculiar conditions which surround the trade.

The twin cities will both show the highest totals in building that have been reached in years, and other cities are making proportionally good records. It is noteworthy also that much better buildings, more substantial and more of fireproof construction, have been erected this season.

The new St. Paul building code is about to be reported to the council by the commission having the matter in charge. Numerous changes are proposed, including an entire new section for concrete construction.

The ordinance governing sidewalk and curb work in St. Paul is being revised so as to place complete control of the work with the board of public works. All work must conform to the city specifications, and permits must be secured before such work is done. Curbing will be laid by complete blocks, including the corner radius curves, and the cost will be distributed upon the whole block.

Kinney & Halden, architects, Minneapolis, have dissolved partnership, F. E. Halden retaining the old offices at 605 Kasota building.

Maxime Boyer, of the architectural firm of Boyer, Taylor & Tewes, St. Paul, was married recently to Miss Olive Fondseth.

The Northwestern Clay Association held its first meeting of the fall in Minneapolis recently. There was a moderate attendance. An address by Nels Madsen, of Hutchinson, Minn., on clay drain tile, attracted considerable attention. It was felt that prices on brick would tend higher.

St. Paul building permits for October reached the very satisfactory total of $1,324,400, a gain of over $612,790 over the same month of last year. The total for ten months of this year is $9,938,367, showing a gain of $4,139,973 over ten months of last year, or a gain in excess of 70 per cent—the best in many years.

Minneapolis ran about even with October of last year in permits, there being a slight gain. The figures are $1,035,815 this year, against $990,390 for October of last year. The total for ten months is $11,180,835, which is more by $1,086,920 than for the twelve months of last year. There is still considerable large work for which permits may be taken out this year, to add to the 1909 totals.

C. A. P. Turner, of Minneapolis, has recently returned after an extended trip covering 3,000 miles, in the interest of his mushroom system of reinforced concrete construction. He made contracts covering 400,000 square feet of work during the trip.

ARKANSAS AND OKLAHOMA.

LITTLE ROCK, ARK., Nov. 18.—The building supply business and construction work here is very good. Prices are holding firm, with a tendency to advance.

The State National bank is erecting an 11-story office building.

The Big Rock Stone & Construction Co., an allied corporation of the Arkansas Brick & Manufacturing Co., headed by W. W. Dickinson, reports its quarries in full operation. C. E. Taylor is secretary and treasurer of this company. The management was quite active in the local entertainment work at the recent meeting of the municipal engineers, held here.

The Mills-Darrah Lime & Cement Co., 701 Main street, is doing much of the supply work in Little Rock. The company is agent here for the Sunflower and Iola Portland cement, Acme plaster and other products.

J. D. Joy, contractor, at 3308 Hight street, is doing some concrete foundation work on a group of stores now going up in this city.

W. R. Stewart has the general contract for a 6-story addition to the Hotel Marion, and has just finished the Carnegie library at Little Rock, which includes a lot of stone work.

The Little Rock Granite Brick Co., of which W. G. Fatherly is manager, is located along the Arkansas river, from which sand is secured, and has good railroad facilities. The company is now in its fifth year.

One of the most recent comers in the field, and one which is building up a big business all over Arkansas and adjacent states, is the Hydraulic Sand & Stone Co., which is operating a rock crusher in the suburbs of the city. E. N. Wiggle heads this enterprise and has opened an office in the Gazette building. His rock-crushing plant has a capacity of about 200 cubic yards a day. Mr. Wiggle is doing some work on the new state capitol.

The Hot Springs Concrete Co. is one of the leading institutions in Hot Springs in the building supply line. It reports a very good trade, although prices are low. C. E. Marker is outside man for this firm, and R. A. Gibson, formerly of the Old Dominion state, is office manager. The company has now on hand a large contract for concrete sidewalks at England, Ark. It also handles lime, cement and plaster.

J. J. Helfer, sales manager in Hot Springs for the Altoona Cement Co., the works of which are at Altoona, Kan., called on the trade here this week.

While in Hot Springs the ROCK PRODUCTS man was shown a very handsome concrete block residence erected for W. S. Sorrells, by the Hot Springs Concrete Co., of which he is president. The house presents a beautiful color and is now a couple of years old. The lawn vases and everything about the place, except porch rails, which are of brass, are in concrete.

Murphy Bros., carriage builders, are erecting for themselves a 3-story reinforced concreted wagon factory at Hot Springs. For the reinforcements they are using old steel wagon tires, and with surprisingly good results.

Argenta is almost a suburb of Little Rock, being just over the bridge spanning the Arkansas river. The Mechanics' Lumber Co., of Little Rock, does a nice supply business in Argenta and also fills many contracts in Little Rock. It has been making some improvements this fall in its warehouse facilities. The management reports trade as excellent.

The First National Bank, at Benton, Ark., has just completed a fine new building, with concrete columns in front, tile floors and Italian marble work inside. Architect C. L. Thompson, of Little Rock, planned the same.

Quite a lot of work is going on in Fort Smith, Ark. The First National bank has finished its new sky-scraper in white enameled brick.

The Arkansas Valley Trust Co. has a fine building under construction.

The Burke-Andrus Sand Co., of Fort Smith, is working on the Arkansas river with several boats and is shipping much sand.

The Ft. Smith Terminal Warehouse Co. is a comparatively new firm in Fort Smith, dealing extensively in building supplies. It will remove its office within a few days to the new First National bank building.

There is considerable concrete block and reinforced concrete work going on now in Muskogee, Okla. Many tall buildings are under erection.

Smith & Bramlett are erecting a 3-story concrete office building on Main street for themselves.

J. Frank Norris, of Rochester, N. Y., the well-known concrete block maker, is just completing a large addition to his plant in Brighton. This is due to the increasing demand for his high class "Norris" stone, which has taken a firm hold on builders generally. Additional "Hercules" machines will be installed early in the spring.

THE WEST COAST.

SAN FRANCISCO, Nov. 12.—Concrete as a building material is growing in favor in San Francisco. There is a material increase in concrete construction over the records of previous years, and both the cement and crushed rock interests are well satisfied. The rainy season has arrived, however, and with the resultant delays in all sorts of building work the demand for cement has fallen off to a slight extent, but there is plenty of work in prospect so there is every likelihood that the movement next spring will be as great as ever.

While local building operations for the past month have shown some increase over September, by far the greatest activity is in the cheaper class of structures in which wood is the principal factor. There is some encouragement in the fact that the supervisors have ordered the removal by next May of all the temporary shacks that were erected within the fire limits in 1906. These buildings were put up on temporary permits, and their removal will make room for a great deal of construction of a more permanent nature.

The principal requirements in the way of concrete work at present are for street improvements, new sewers and water front improvement. While this work is being carried on in San Francisco on a larger scale than at most other places on the Coast, there has been quite an increase in activity at nearly all the principal towns and cities. The San Francisco board of works has formally approved the plan for the Twin Peaks reservoir for the auxiliary gravity water system, and an appropriation of $190,000 is to be made to cover the cost. The reservoir is to be of reinforced concrete. A bond election is to be held within the next month, to decide upon an issue of $1,000,000 for the construction of a number of additional reinforced concrete sewer mains, besides other issues for the erection of municipal buildings. Plans are also under consideration for a new concrete bulkhead wharf at the foot of Beale street, and the wooden wharf at the foot of Mission street is being removed to make place for a new concrete structure for the use of the Western Pacific railroad.

Cement companies having headquarters in San Francisco report that all their plants are in full operation, and most of the output is disposed of without difficulty. While a little stock may collect during the winter, it will not affect the market, as all the companies have ample storage capacity and are in a position to hold any surplus for full prices. Some difficulty has been experienced lately on account of a car shortage, which prevents cement from being shipped out as fast as it is wanted by consumers.

The Natomas Consolidated of California, one of the largest rock-crushing interests of the Sacramento valley, is extending its operations into other portions of the state. It has just acquired the Shocken rock quarry at Sonoma, and is preparing to furnish rock for paving work in that district. The rock-crushing plant which it recently acquired from the Sacramento Valley Construction Co. near Oroville, Cal., is to be doubled in capacity at once, and other improvements will be added owing to the rapid increase of demand in that locality.

From plans made by the Santa Fe railroad it is estimated that 100,000,000 tons of crushed rock will be required to ballast its roadbed through the San Joaquin valley from Stockton south. A large part of the material will be taken from quarries in Kings river canyon.

Henshaw, Bulkley & Co., of this city, have taken a contract to install a large rock-crushing plant for Los Angeles county at the Pacoima quarry. E. M. Hall has taken a contract from Los Angeles county to operate the San Dimas quarry and to furnish rock to the county at 53½ cents per ton.

The Borden-Billings Concrete Culvert Manufacturing Co. has been incorporated at San Diego, Cal., with a capital stock of $25,000.

The Magnesia Asbestos Supply Co., of this city, has leased a large building on Howard street, near Second, and will move to the new location this month.

A. M. Lehnberg is preparing to open a large rock quarry at Elsinore, Cal.

Good progress is being made on the San Juan Portland Cement Co.'s plant at San Juan Baptista, Cal., and it is expected that by next spring the company will have its product on the market.

The Western Rock Company has been incorporated at Fairfield, Cal., with a capital stock of $100,000, by James A. Keys, E. E. Long, W. Z. McBride and F. A. Steiger. The company will install a $30,000 crushing plant at Vacaville, Cal., next spring.

Extensive additions are being made to the plant of the Western Gypsum Co. at Reno, Nev., and all the company's plants in Nevada are to be improved during the winter.

In order to carry out its contract with the government to furnish 380,000 tons of crushed rock at Columbia river jetty, the Columbia Contract Co., of Portland, Ore., has ordered a number of steel barges.

Early next month work will be started on the plant of the Portland Cement Co. at Oswego, Ore., and the mill is expected to be in operation in the spring of 1911. All the buildings of the plant will be of reinforced concrete. The company has secured $900,000 on a mortgage on its properties at Roseburg, Marquam and Oswego, and is in a position to carry out the construction work without delay. The work will be under the direction of Aman Moore, president of the company, who has been identified with similar work in Colorado, Utah and Texas.

CLEVELAND.

CLEVELAND, O., Nov. 18.—Reports compiled for the first ten months of the present year indicate an enormous increase in the city's building record as compared with 1908. The figures are about 41 per cent greater than a year ago, while the fireproof buildings have increased 76 per cent, as against a 2 per cent increase in frame structures.

A number of big projects have been announced during the month, work on some of which is to begin early in the new year. The largest one is a 12-story skyscraper for Euclid avenue adjoining the building of the Cleveland Trust Co. It will be 86x172 feet in size. The front will be of brick or terra cotta, probably the latter, while the side walls will be of brick. The framework is to be of steel heavily fireproofed with concrete. The building will cost in the neighborhood of $500,000.

Another project running into a big sum has been announced by the officers of the Pennsylvania railroad. A plot of ground with a lake frontage of several hundred feet and a river frontage of about the same, and known locally as Whisky island, has been purchased by the railroad, which intends to make it a great ore unloading terminal. It is announced that $4,000,000 is to be expended on new reinforced concrete docks, concrete storage bins and other indestructible facilities for the loading and unloading of iron ore, which comes in huge quantities here to be transferred to the railroad for shipment to the Pittsburg district and furnaces all over this part of the country. A series of concrete piers will be built in the west basin by the railroad company, where ships may tie up. Great bins of concrete are also to be erected, in which entire cargoes may be stored in the event of cars not being immediately available. Actual construction work is expected to start early in the spring.

Work is progressing rapidly on the concrete grand stands for the baseball park. There are nearly 900 feet of double-decked grand stands and pavilions being erected for use next year, by the Hunkin Bros. Construction Co., from plans prepared by the Osborn Engineering Co., of Cleveland. A long concrete fence, twenty-five feet high, is being built on one side of the grounds. Nearly 5,000 barrels of Lehigh Portland cement are being used. It is expected all of the concrete will be set before cold weather holds up the work.

A large tract of ground at Euclid avenue and East Seventy-first street has been leased to the Giddings Realty Co., and a $60,000 fireproof automobile salesroom and garage 62x200 feet in size is to be erected on the property at once by that concern. The latest ideas in fireproof construction are to be used in the new structure. George H. Kelly is president of the company.

The Glidden Varnish Co. is adding another reinforced concrete building 60x100 feet to its fireproof plant in the west end of the city. It is being erected by L. Dautel & Son.

The F. G. Clark Oil Co., which had its plant wiped out by fire a short time ago, has let contract for a fine fireproof reinforced concrete building 50x300 feet in size, and three stories high. It is being built by the Bolton & Pratt Co.

At the annual meeting of the Cleveland Builders' Exchange, E. E. Teare was chosen as president of the organization; J. C. Skeel, vice president; George A. Rutherford, treasurer; Edward A. Roberts, secretary, and Chester M. Harris, assistant secretary. The exchange has a bank balance of about $20,000 and is considering the erection of an office building to be used for its own needs and for the building fraternity generally.

Fine progress is being made with the huge concrete span, the largest in the world, which is to cross Rocky river just west of the city of Cleveland. Most of the concrete for the main arches will be set before the weather holds up the work. Herren Gehler and Widman, of Dresden, and Herr Reiter, of Leipzig, representatives of the German government, who made a tour of the country during the past month, took a look at the big undertaking and expressed their astonishment at the progress of concrete building operations in America.

CHICAGO.

CHICAGO, ILL., Nov. 20.—Practically no change has been noted in the cement market this month. The demand has been large, fully as heavy as that of last month, which is unusual for the reason that October has always proved the most active month in past years. Indications point to much activity in building lines this winter, weather conditions permitting. Buildings under construction and in contemplation at the present time in the business district particularly are larger in number and greater in magnitude than during the same season of the past two years combined. These structures will require the consumption of immense quantities of cement before the winter passes or bad weather sets in. Building operations have been very extensive and will in all probability exceed those of last year to a marked degree. Railroads have been heavy buyers of cement this fall. Prosperous conditions will force the railroad companies to make still more improvements in repairing road beds and extending lines to take care of increased shipments which will still further help to increase the demand for cement. These are some of the important factors which have caused the consumption of a really wonderful quantity of cement in Chicago this year and have produced an optimistic and cheerful feeling to a degree which leaves no doubt in dealers' minds for great business in the future.

"Market fine, conditions good and big demand for cement," replied J. U. C. McDaniel, of the Chicago Portland Cement Co., smilingly, to a question asked about the market as he looked up from his desk, where he was busily engaged on sales and traffic problems. "The demand has been as good as last month," Mr. McDaniel continued, "and October is always the banner month of the year."

"Last month shipments were large and demand for cement good, which has continued through the month of November," said C. C. Secrist, of the sales department of the Universal Portland Cement Co. "This year will be a very satisfactory one, taking everything into consideration. There has been very little cutting in prices for the reason that there is nothing left to cut. Conditions this month have been good and every one feels that times of great activity next year are in store for the cement trade."

"At our Syracuse, Ind., plant, from the first to the middle of this month we have shipped more cement than during the entire corresponding month last year," said E. A. Mollan, of the Sandusky Portland Cement Co., "and if this demand continues for thirty days it will clean out the stock. Heavy shipments from the Dixon, Ill., plant have also been made this month. This shows a big increase over last year."

"Just closed several big contracts for next year at stiff prices," said Edward L. Cox, general sales agent for the German-American Portland Cement Co. "The demand has been heavy this month, and it looks as though it very likely will continue to the close of the season. Indications point to an extraordinarily active year for 1910."

George W. De Smet, distributer of Vulcanite and Berkshire Snow White Portland cement, said: "The market is in fine condition, demand very heavy and not near as much cutting in prices this month as previously, which carries with it a stiffening of values. There has been a wonderful quantity of cement used this year in Chicago and the outlook indicates a much greater demand next year than this city has ever had. Everybody in the cement trade is satisfied and happy."

M. E. Van Frank, secretary of the Standard Material Co., said: "This has been a good year for the dealer in builders' supplies, somewhat erratic, perhaps, but good taking it as a whole. In July and August business was dull, but since Labor day we have not had an idle moment. There are many buildings under construction, and much work must be done in putting in foundations. All this work is expected to be under roof by Christmas, which will keep dealers busy during the winter."

"There is no question but that business this year has been good," said H. O. Heitman, president of the Union Coal, Lime & Cement Co., as he put on his overcoat, to try out an automobile which is to be used in the business. "The demand for lime and cement has been brisk, there has been a lot of building going on in the South side and there is enough work which will be under roof by Christmas to keep us busy till then at least. Next year we will break all records from present indications."

"Prices are about the same as they have been," said J. B. Tuthill, of the Tuthill Building Material Co. "Business in all lines of building material has been much better than last year. There are numerous flat buildings on the South side now under construction which will be under roof late next month requiring greater quantities of material than the builders' supply dealers can furnish without keeping busier than they have been for years at this season."

SAND-LIME BRICK

Convention of Sand Lime Brick Men.

The sixth annual convention of the National Association of Manufacturers of Sand Lime Products will be held at Buffalo, N. Y., in the Hotel Statler, on December 6 and 7.

The executive committee has provided for an unusually interesting program, carefully framed to meet the needs of all the attending members. The influence of the association is now well recognized, embracing, as it does, all of the establishments in successful operation in the United States and Canada. Other manufacturers, wherever located, are invited to join in the work and share in the benefits of the association.

Every member attending is requested to bring to the convention two samples of his average run of brick and a sample of sand (about one pint) for the purpose of havin ga comparative exhibit of sand lime products from all parts of the United States and Canada.

It will be well to make reservations for accommodations as early as possible, either direct or through the secretary. European rates are $1.50, $2.00 and $3.00 per day.

Sand-Lime Brick Statistics.

The sand-lime brick industry, says the Geological Survey report, is a comparatively new one in the United States, having had its beginning in Michigan City, Ind., in 1901. Its progress was slow at first, the value of the production in 1903 being only $155,040. From that time the value increased each year until 1907, when the maximum of $1,225,769 was reached. In common with other building materials there was a decrease in 1908 in the production of sand-lime brick to $961,226. The number of plants reporting made a rapid growth from sixteen in 1903 to ninety-four in 1907, with a slight decrease in 1908 (to eighty-seven).

Common, front and fancy brick were manufactured from sand and lime in 1908. The average price per thousand for common brick was $6.63, as against $6.61 in 1907 and $6.71 in 1906; for front brick the price was $12.16, against $10.96 in 1907 and $10.42 in 1906. In 1908 common brick composed 83.57 per cent of the value of all bricks and front brick 15.37 per cent.

Thirty states reported both in 1907 and 1908, Alabama dropping out of the list in 1908 and Montana appearing. Of the individual states Michigan, as in 1907, was the leading state in 1908, reporting bricks valued at $138,809. Florida was second in both years.

An advance chapter of "Mineral resources of the United States, calendar year 1908," contains tables showing the production of sand-lime brick by states in 1907 and 1908. The pamphlet may be had free of cost by applying to the director, United States Geological Survey, Washington, D. C.

Wisconsin Composite Brick Co.'s Plant.

The new plant of the Wisconsin Composite Brick Co., at Milwaukee, Wis., has been completed. It is located on what is known as Vogel's Island and Canal street. The officers of the company are: Henry Smith, president; Foster Prins, treasurer; Frank E. Buestrin, secretary, and Laurence Elkus, manager. The product manufactured by this concern will be known as "El-kus brick," and is said to be a facing brick of great strength and high quality. It is manufactured from sand with lime and cement, nearly akin to the sand lime brick proposition. In fact, it is the same principle developed in a little different way from the usual methods. Mr. Elkus, the manager of this plant, is well known in the sand lime brick industry, having organized operating plants at Rochester, N. Y., and Indianapolis, Ind. The new venture starts with every evidence of success.

Will Install Permanent Fountain.

HELENA, MONT., Nov. 16.—The Montana Granite Brick Company, of this city, has planned a novel, as well as highly useful exhibit at the Montana state fair this year. In fact, it will be a permanent exhibit, and will fill a long felt want. The company has had plans prepared for a fountain enclosed in a neat and tasty brick home, the brick to be vari-colored and handsomely arranged.

The structure will be about twenty or twenty-five feet tall with a cupola, and about ten feet in diameter, with four entrances. There is to be a concrete floor, with the fountain and drinking cups in the center. The company will present the fountain and structure to the Montana State Fair.

Will Add New Department.

MILWAUKEE, WIS., Nov. 20.— The Allis-Chalmers Company have engaged Franklin Henshaw, an engineer of wide experience and until recently associated with the International Sand-Lime Brick and Machinery Company, New York City, as commercial engineer in charge of a department for the manufacture of sand-lime brick plant equipment, which they will install. They will manufacture a full line of machinery required in such plants, including crushers, sand driers, hardening cylinders, mixers, tubemills, etc., and are prepared to make plans and specifications for the building and complete equipment of sand-lime plants, including engineer supervision.

Handsome Home for Brick Co.

FREMONT, NEB., Nov. 15.—The Granite Brick Co., of this place, has started up its new plant, which has been erected to replace the original home of the company, destroyed by fire in July. The new plant, of white brick, is an imposing one and a great improvement over the old one.

The Watertown White Brick Company has been incorporated at Watertown, N. Y., to manufacture brick and building material; capital stock, $10,500. Incorporators: Francis H. Root and L. M. Aldrich, Watertown, N. Y., and Burton W. Aldrich, Theresa, N. Y.

The Piketon Brick Company has been incorporated at Piketon, O., with a capital stock of $100,000. W. H. Patterson, T. N. Patterson, C. K. Patterson, John M. Barger, L. G. Dill, T. S. Rittenour and Joyn M. Vylgamore, incorporators.

Work is progressing on the new $10,000 plant of the Wisconsin Composite Brick Company on Vogels Island, near Milwaukee, Wis.

The Manistee (Mich.) Brick Company is in successful operation, running two 10-hour crews and producing a daily output of 22,500 brick with each ten-hour shift.

The White Silica Sand and Cement Brick Company, Erie, Pa., has been organized at Dover, Del., with $500,000 capital stock. Incorporators: Adam Karch, Frank L. Leary and John W. Schester, all of Erie.

The Grande Sandstone Brick Company, Grand Rapids, Mich., now has its factory in full operation.

Robert Nesch has sold his controlling interest in the Leavensworth Brick Company to the owners of the Atchison (Kan.) Brick Company.

The Montana Granite Brick Company, Helena, Mont., has resumed operations after a shut-down which lasted the entire winter. Orders are now in hand for 2,000,000 brick.

Andrew Pick, Jr., has sold the West Bend (Wis.) Sand-Lime Brick Works to M. H. Evans, St. Paul, Minn., who has already taken charge.

The Saginaw (Mich.) Sandstone Brick Company have increased the capacity of their plant from 22,000 to 50,000 per day by operating day and night shifts.

The International Sand-Lime Brick and Machinery Company, 90 West Street, New York, have the contract for a complete plant to be built in the East. The division method used by them makes a very fine sand-lime brick.

The Fremont (Neb.) Granite Brick Company have let the contracts for the reconstruction of their sand-lime brick plant, which recently burned to the ground. The managers visited many plants in all parts of the country.

Another New Brick Co.

The Duffney Brick Co., of Mechanicsville, N. Y., has been incorporated to manufacture and deal in brick, stone, building materials, etc.; capital, $35,000. Incorporators: William H. Duffney, William H. Duffney, Jr., Stephen Lee, all of Mechanicsville, N. Y. The directors have elected the following officers: President, William H. Duffney, sr.; vice president, John L. Short; secretary, Dr. Joseph M. Purcell; treasurer, William H. Duffney, Jr.

The Monterey (Cal.) Pressed Brick Co. has decided to utilize the fine deposits of sand from the bed of the American river at Sacramento and will erect a sand-lime plant in the near future.

CLAY

Brick and Tile Industry.

The report of the United States Geological Survey on the clay-working industries in 1908, just issued, shows that the total value of the brick and tile products, which include brick of all kinds, sewer pipe, architectural terra cotta, fireproofing, hollow building tile or blocks, stove lining, and all kinds of tile, was $108,062,207, a decrease of a little over 16 per cent from the value for 1907. Every state and territory contributed to the 1908 total. Ohio was the leader, reporting products valued at $15,915,703, or 14.73 per cent of the whole. Pennsylvania, which has heretofore been the leading producer of these wares, was second in 1908, reporting products valued at $13,566,479, or 12.55 per cent of the total. Illinois was the third state in value of products, reporting $10,752,160 worth of brick and tile products, or 9.95 per cent of the whole. No other state reported brick and tile wares valued at as much as $10,000,000, New York being fourth with $7,270,981.

Common brick is the most valuable of all products of clay, those for 1908 being valued at $44,765,614, or 41.43 per cent of all brick and tile products. In 1907 the common brick product of the country was valued at $58,785,461, so that the decrease in value was nearly 24 per cent. The number of common brick reported was 7,811,046,000, compared with 9,795,698,000 in 1907, a loss of 20.26 per cent. The average price per thousand at the kiln decreased from $6 in 1907 to $5.73 in 1908. Illinois is the largest producer of common brick, reporting 1,119,224,000. These brick were valued at $4.32 per thousand. New York, while second in production, was first in value of product.

The most striking features of the report are the decrease in every variety of product except two, vitrified paving brick and drain tile. Vitrified paving brick showed a gain of 101,877,000 in quantity and $1,003,193 in value, an increase of 11.63 and 10.39 per cent respectively. The average value for this variety of brick was $10.90 per thousand in 1908 and $11.02 in 1907. Ohio is the leading producer of this variety of brick, reporting 327,718,000 in 1908, valued at $3,232,335, or $9.86 per thousand; this represents 33.50 per cent of the entire product and 30.33 per cent of the entire value.

The drain-tile industry flourished in 1908, notwithstanding the depression in other branches of trade. The total value of this product was $8,661,476, a gain of 26.18 per cent over 1907. Iowa, Indiana, Ohio, and Illinois were the leading producing states. These four states with Michigan reported 90 per cent of the total product. The use of drain tile is spreading, thirty-nine states reporting it in 1908.

All other important products showed large decreases in value of output except sewer pipe, which showed the comparatively small decline of $479,114, or 4.17 per cent. The value of this product in 1908 was $11,003,731.

The Bagley, McDonnell Brick Co., of Middletown, Conn., has filed a certificate of incorporation· capital authorized, $10,000; incorporators, E. S. Bagley, J. J. McDonnell and Agnes McDonnell, of Meriden.

The tile and brick yard of Hess & Smith, at Monroeville, Ohio, was almost totally destroyed by fire entailing a loss of $12,000 to $15,000, partially covered by insurance.

The Eureka Fireclay Brick Company has recently been organized at Bessemer, Ala. The new plant will be built on clay lands secured by the company at Rickey, near Bessemer. J. D. O'Gara is president and H. W. Sweet, who organized the company, is vice president.

The South Webster Clay Products Company, South Webster, O., has increased its capital stock from $100,000 to $1,000,000.

The Rocky Mountain Fire Brick Company has been incorporated at Salt Lake City, Utah, for $250,000, and will erect a plant at that place. The company owns several valuable fireclay deposits in the state and will enter actively into the manufacture of refractories, including crucibles. The president of the company is L. O. Ensign, and John W. Ensign is treasurer.

The Standard Brick Company has been incorporated by F. F. Wright, P. K. Stauff and G. Q. Dean, 81 Nassau Street, New York City. Capital stock, $300,000.

Gas Firing for Lime Kilns.

—Continued from page 36D

heat collectors or accumulators (*b*). The furnace proper (*c*) is arranged so that it may be started as a direct-fired grate and afterwards changed gradually to gas-firing, and on this account it is built centrally to the whole structure, the recuperators being placed at each side.

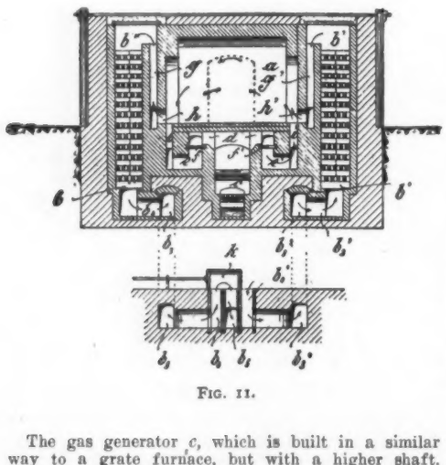


FIG. 11.

The gas generator *c*, which is built in a similar way to a grate furnace, but with a higher shaft, is arranged below the burning chamber *a*, and the two heat collectors or accumulators reach approximately from the bottom end of the gas generator to the upper end of the heating or burning chamber. The gas generator is connected to the chamber at both sides by means of conduits of flues *d e*, between which are arranged dampers *f*, the latter making it possible to close the one or the other of the flues *d*. The two heat collectors *b* are connected to the heating or burning chamber *a* by means of conduits *g* and openings *h*. The heat collectors, which are provided with a grating of refractory stones or other material, are connected at the bottom end to conduits *b*1, *b*2, *b*3, *b*4, which can be brought into communication either with the chimney channel *b*5 or with the outer air by means of a device consisting of a box *k*. Assuming that the damper *f* on the left-hand side is closed, the corresponding damper *f'* on the right-hand side being open, and the box standing as shown in the drawings, the conduit *b*4 on the right-hand side is in connection with the outer air and the conduit *b*4 on the left-hand side is connected with the chimney, and assuming further that the generator is filled with coal, and that the whole furnace is already incandescent, the generator gas will then pass through the right-hand conduit system *d e* into the heating chamber *a*, and the air through the right-hand conduit system *b*4, *b*3, *b*2, *b*1, the grating of the right-hand heat collector and the conduits *g h* also into the heating chamber *a*. Gas and air become mixed at the right-hand end of the chamber, burn in the interior of the chamber *a*, and pass at the other end through the conduits *h g* and the heat collectors *h*, as well as the conduits *b*1, *b*2, *b*3, *b*4, on the left hand, into the chimney. The combustion gases escaping from the chamber give off the greatest portion of their heat to the grating of the heat collector arranged on the left-hand side. When the latter is so highly heated that the combustion gases begin to escape through the flues *b*1, *b*2, *b*3, *b*4, at a high temperature, the box *k* is drawn to the right side, so that the left channel *b*4 be open and the right channels *b*1,*b*2,*b*3,*b*4, are connected to the chimney. If then the right-hand damper *f* is closed, and the left-hand one is opened, the gas will pass through the left-hand side flues *e* and *g* into the chamber, and air will pass through the left-hand side flues *b*4, *b*3, *b*2, *b*1, the grating of the left-hand side heat collector and the right-hand side flues *g h*, into the chamber. The direction of the flame will be reversed, and it will pass on the other side through the flues *g h*, to the heat collector, and after having given off to the latter the greatest portion of its heat through the right-hand flues *b*1, *b*2, *b*3, into the chimney. The air is, of course, highly heated by the previously highly heated left-hand side accumulator, and passes into the chamber with a very high temperature. The producer gas will also pass into the heating chamber at a very high temperature, since it has to traverse only a short conduit, and, thus, it is possible to increase the temperature in the chamber to a much higher degree than is possible in the furnaces generally used, for instance, for burning or heating highly refractory materials. As the direction of the flames can be altered at given intervals of time, the temperature in the chamber can be raised as much as desired up to the limit of the dissociation temperature of carbonic oxide, that is to say, up to 2,000 degrees C.

A regeneratively heated muffle furnace is represented in Fig. 12. It is worked in a similar manner to the kiln shown in Fig. 11 and possesses all the advantages of the latter, with the added one of keeping the goods inside the muffle absolutely out of all contact with the flame. It is therefore specially suited for glazing, for pottery manufacture and for firing very hard enamels.

Summary of Advantages of Gas-Firing.

The reader will already have gained a general impression as to the special advantages to be derived from the use of producer gas in preference to the direct combustion of the coal in the furnace or fire-box. They may be, however, summarized as follows:

1. There is a very considerable saving in fuel, amounting in some cases to half the fuel used.

2. The product is more even in composition, over-burning or insufficient heating is less frequent, as the furnace is more under control.

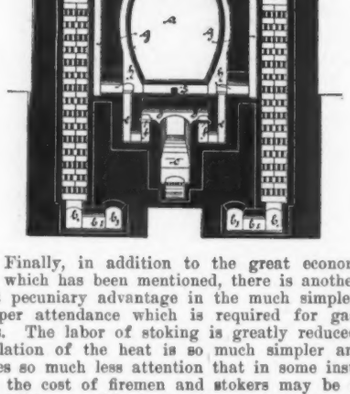
3. No partially burned gases can escape from the furnace or kiln. As these gases are very poisonous and whether accompanied by smoke or not are always objectionable—particularly in shaft kilns—and invariably lead to loss of fuel through the incomplete combustion.

4. In shaft kilns the product can be drawn out in a cool state, which greatly facilitates the handling of the material, and very little dust is formed. In many cases the powdered material can be automatically separated from the lump before withdrawal.

5. Many kilns and furnaces at present in use can be converted into gas-fired kilns at a comparatively small cost, whilst in constructing new kilns the cost of erection is often less than for those of the direct-fired type. This is particularly the case with lime-burning when a Schmatolla fias-fired shaft kiln is compared with the ordinary continuous annular kiln.

6. The durability of kilns and furnaces fired by gas is much greater than those fired direct with coal, owing to the more regular heating and the lesser changes of temperature such as occur when fire-box doors are opened for stoking in the ordinary way. The lining of the furnaces or kilns also lasts much longer, as it is not subjected to frequent blasts of cold or practically cold air as in direct coal firing. in gas-fired kilns and furnaces no egress of air is used, and consequently the ordinary disadvantages of this unnecessary air are completely avoided.

FIG 12.



7. Finally, in addition to the great economy in fuel which has been mentioned, there is another distinct pecuniary advantage in the much simpler and cheaper attendance which is required for gas-fired kilns. The labor of stoking is greatly reduced, the regulation of the heat is so much simpler and requires so much less attention that in some instances half the cost of firemen and stokers may be saved. In addition to this, it is often possible to employ inferior fuel with greater advantage than can be claimed for best coal in the ordinary grate.

The Ernst Wiener Co., 50 Church street, New York, has recently issued its catalogue No. 200. It is a 132-page book, and in it the company has endeavored to cover every phase of industrial railway equipment under the heading of cars, tracks, switches and turntables. It has embodied a series of tables which should prove of value to the prospective or present user of equipment of this character. There are also tables of rails and fastenings, required for one mile of single track, tables for 1,000 gross tons of rails, tables of spikes, and tables for crossties per mile.

SAGINAW, MICH., Nov. 17.—The Saginaw Concrete Stone Company, manufacturers of concrete building material, have recently put on the market a cement tile roofing which is claimed to be the best roofing of this material that is manufactured at the present time. It is fireproof.

Side Talk

New Home for Gandy Co.

With the completion of a large 4-story addition, the Gandy Belting Co., of Baltimore, Md., now has the largest factory in the world devoted to the manufacture of cotton duck belting. The new building has a frontage of 110 feet on Fremont avenue and 104 feet on King street. It is of slow burning or New England mill construction, each floor being divided into three bays of 25′ span each and one of 30′ span, the capacity of each being 300 pounds per square foot live load. Three fireproof stairways are provided, also an electric elevator driven by a three phase induction motor.

A large portion of the floor space is devoted to the specially constructed stretching machinery designed by the Gandy company. When it is understood that the stretch in canvas belts has heretofore been one of the most serious drawbacks to overcome in their manufacture, the importance of the success of this device used exclusively by the Gandy company cannot be overestimated by belt users. The foundation of the Gandy belt is very heavy duck, woven in the Gandy company's own duck mill according to the specifications adopted by Mr. Gandy thirty years ago and never since changed, as exhaustive tests have conclusively proved this peculiar weave best for belting purposes. It has an even strain throughout. After stitching, the belt is treated to a secret process which renders it water, heat and steam proof. With these exclusive features, the manufacturers claim they produce the most durable belt on the market for driving, elevating and conveying purposes.

T. A. Judson, Allentown, Pa., formerly cement inspector for the Rapid Transit Commission of New York, has just completed two double apartment houses after the designs of Thomas A. Edison. Each half of the house has a frontage of 18′ and is 60′ deep, with front and rear porches. The style is an adaptation of Greek lines with plenty of light, and the houses are wholly of concrete. Penn Allen Portland cement was used, and without any expensive exterior treatment a warm buff uniform color has resulted, which is said to be very pleasing. The walls, partitions and floors are all reinforced with steel. A concrete refrigerator is built into the kitchen wall. The builder and owner has moved into one of the houses, and the feminine portion of the family are delighted with the useful features of concrete construction, which are a great help to housekeepers. This is claimed to be the first practical application of Mr. Edison's idea of home construction—with some individual variations introduced.

H. W. Caldwell & Son Co., engineers, founders and machinists, Western avenue and 17th street, Chicago, have just issued their catalogue No. 34, in which they endeavor to fully and accurately describe the machinery manufactured by this company, although the constant additions and improvements they are making to their line of manufactures makes it impossible to publish a catalogue that will for any length of time show the complete line. The book is 847 pages, bound in cloth, printed on highly calendered paper and profusely illustrated with views of the plant and machinery manufactured by this company.

The American Steel & Wire Co., 115 Adams street, Chicago, has recently issued another copy of the W. & M. Telephone Wire News. This is an attractive 12-page pamphlet with a beautiful cover design in colors. It contains some very valuable articles by eminent authors and authorities on telephone wire and the maintenance of telephone lines, and should be of interest to all users of this material.

The C. O. Bartlett & Snow Co., engineers, and manufacturers of elevating and conveying machinery, direct and steam heat dryers, Cleveland, Ohio, announce the following recent sales of equipment:

Crow's Nest Pass Coal Co., Fernie, B. C.; Maryland Steel Co., Steelton, Pa.; National Refining Co., Findlay, Ohio; National Tube Co., Pittsburg, Pa.; Goldie & McCulloch Co., London, Ont.; Winding Gulf Colliery Co., Cincinnati, Ohio; United States Smelting, Refining & Mining Co.; Champion Rivet Co., Cleveland, Ohio; International Salt Co., Utica, N. Y.; James Cornhill, Chatham, Ont.; Pacific Coke & Coal Briquetting Co., Seattle, Wash.; Upson Nut Co., Cleveland, Ohio; Kelley Island Lime & Transport Co., Cleveland, Ohio; Winding Gulf Colliery Co., Cincinnati, Ohio; William A. Clark, Butte, Mont.; American Smelters Securities Co., New York.

Information of great value is contained in the "Nazareth Portfolio," just issued by the Charles Warner Co., of Wilmington, Del., general sales agent for the Nazareth Portland cement. It deals fully with the use and possible abuse of Portland cement. Users or prospective buyers of cement will find in this portfolio in loose-leaf form at a glance just the information needed. It is a novelty among cement publications. In its preparation an expert cement chemist aided, and it contains in condensed form tables and information regarding the uses of cement which are practical, correct and up-to-date. This publication has been sent broadcast to people interested in the use of cement, who will do well to preserve it, as additional pages are to be issued from time to time. Anyone wishing a copy may obtain it by asking his dealer or writing to the company's office in the Metropolitan Tower, New York; the Land Title building, Philadelphia, or the Compton building, Boston.

A "Hand Book and Catalogue of Concrete Reinforcement," recently published by the American Steel & Wire Co., is of great interest and value to engineers and architects throughout the country. This revised edition of the company's "Engineers' Hand Book and Catalogue on Triangle Mesh Reinforcement of Concrete" touches briefly not only the reinforcement for concrete, but concrete itself. The data contained in the work is the result of careful study by the engineering department and also by some of the best known and accepted authorities. Many chapters and paragraphs dealing with reinforced concrete were selected and reprinted by permission from text books, bulletins and other publications. Tables giving the weights of fabric per square foot, number, sizes, spaces and areas of wires and longitudinal strands of Triangle mesh-woven wire reinforcement and tables of resisting moments, thickness of slabs, diagrams, etc., are given. Great credit is due to Harry S. Doyle and associates of the reinforced concrete department of the American Steel & Wire Co., who completed this work, in which they show thorough familiarity with all the intricate problems of reinforcement for concrete.

The Atlas Portland Cement Co., 30 Broad street, New York, has recently issued three books which they have spent considerable time and money preparing.

"Concrete Construction about the Home and on the Farm" is a new and revised edition of their former popular book, and contains many new uses for cement besides a number of valuable tables.

"Concrete in Railway Construction" has been published with the idea of advancing the use of concrete for this class of work, and the data has been furnished by various railroads, the names of which appear in the book.

"Concrete in Highway Construction" is published primarily for the road supervisor, engineer and contractor, and contains much valuable information.

The book on "Concrete on the Farm" is given away; the other two are $1.00 each.

The tremendous popularity of Amatite Ready Roofing shows how the idea of a roofing which you don't have to paint has been seized upon by practical Americans all over the country. The great trouble with the old style smooth-surfaced roofing was the fact that it required too much care. It had to be painted every two years to keep it in proper condition. Amatite, however, is no more expensive than smooth-surfaced roofings of equal weight, and as soon as it is laid the work is all done. Not only can Amatite be left unpainted, but its mineral surface actually makes painting impossible. There is accordingly a big saving in money, trouble and bother. A free sample of Amatite may be had by addressing nearest office of the Barrett Mfg. Co., New York, Chicago, Philadelphia, Boston, St. Louis, Cleveland, Pittsburg, Cincinnati, Kansas City, Minneapolis, New Orleans.

The Sharon Steel Hoop Co., manufacturer of slotted steel studding for fireproof partitions, suspended ceilings and furrings, Commercial National bank building, Chicago, with mills at Sharon, Pa., has recently issued a sheet with its advertisement as it will appear in Sweet's Index for 1910. It gives full illustrations and descriptions of its slotted steel studding, and "Parker" steel corner bead for the protection of plastered corners. A copy may be had on application.

The Sandusky Portland Cement Co., of Sandusky, O., reports its Pure White Stainless Portland cement used on the following important jobs: Hospital, Ellis Island, N. Y.; National Museum, Washington, D. C.; Providence Hospital, Seattle, Wash.; Mrs. Robt. Stafford's estate, Huntington, L. I.; Lurline Baths, San Francisco, Cal.; O. C. Barber's estate, Barberton, O.; Emigrant's Bank, New York; Alfred Washington's residence, Glencoe, Ill.; Soulard public baths, St. Louis, Mo.; H. R. H. Prince of Wales' racquette court, Marlborough House.

The company's Medusa waterproof compound has been used in the following: Naval Y. M. C. A. basement and swimming pool, Norfolk, Va.; Ranier-Grand hotel extension basements, Seattle, Wash.; Butler building, San Francisco, Cal., basements 80 feet below sea level; Western Union Newspaper building, Chicago, Ill.; swimming pool, University of Minnesota, Minneapolis, Minn.; large building, 31st street and 5th avenue, New York; Soulard public baths, St. Louis, Mo.; Gary Light, Heat & Water Co. power building, Gary, Ind.

CLASSIFIED ADVERTISEMENTS

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line.
Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copies of paper containing the advertisement.

EMPLOYEES WANTED

WANTED.

If you are in need of or wish to sell anything which comes under any of these classifications, write us. If you have something not coming under these classifications we will create one for you.

SUPERINTENDENT WANTED

On March 1, 1910, superintended wanted for lime and crusher plant. Wood fuel. Must be experienced in quarrying and burning lime. Strictly temperate. State reference and salary. Address B 721, care of ROCK PRODUCTS.

EXPERIENCED SALESMAN.

Wanted, two first class, experienced, traveling Portland cement salesmen for territory west of the Mississippi River. No beginners or parties handling other lines need apply. Give references; also salary expected. Address 727, care ROCK PRODUCTS.

EXPERIENCED MAN WANTED.

One to operate crusher and fine grinding machinery—artificial salt products—one who can invest a reasonable amount and take full charge of plant. 729, care ROCK PRODUCTS.

SUPERINTENDENT WANTED

about January 1st, 1910, for cement plant in California. Must understand dry process. State age, experience, references and salary.
Address 737, care ROCK PRODUCTS.

SALESMAN WANTED

in New York City for established brand of plaster and hard wall plaster. Must be thoroughly familiar with line and competent to interview architects, contractors and follow up operations. State experience and where employed. Fair salary with increase when warranted. Communications strictly confidential. Address M. Saphore, 197 Seventh Avenue, New York City.

SUPERINTENDENT WANTED.

An experienced man is wanted for a superintendent of lime kilns and hydrated lime plant. Must be thoroughly familiar with the operation of a hydrated lime plant. Address Hydrated Lime, care ROCK PRODUCTS.

SALESMAN WANTED

by wholesale dealer in sewer pipe, wall plaster and lime, to solicit trade among retail dealers in building materials in eastern Pennsylvania, southern New York and northern New Jersey. State age, give reference and salary expected to start. Only those acquainted with this line need apply.
728, ROCK PRODUCTS office.

EMPLOYMENT WANTED

CEMENT SUPERINTENDENT

open for position. Mechanical engineer. 12 years' experience designing, building and operating. Address H. R., care ROCK PRODUCTS.

SAND AND GRAVEL FOREMAN.

Position wanted by experienced sand and gravel washer, foreman. Address 730, care ROCK PRODUCTS.

POSITION WANTED

by an experienced traveling salesman; cement; proficient; first class references.
Address 736, care ROCK PRODUCTS.

MACHINERY FOR SALE

CRUSHER FOR SALE.

Gates No. 4 Gyratory, in fine condition. Cheap.
R. P., BOX 2, Sta. A., Cincinnati, O.

GRAVEL EXCAVATORS.

We make a specialty of Sand and Gravel Excavating Plants, both New and Second Hand, either with Drag-line bucket, Clamshell or Orange Peel. We furnish necessary equipment or will install complete—as desired. Confer with us. WILLIS SHAW MACHINERY CO.,
171 La Salle St., Chicago, Ill.

Marsh's Crusher List

1 No. 8 Gates Plant complete.
1 No. 7½ Gates Plant complete.
1 No. 7½ Austin Crusher only.
1 No. 6 Gates Crusher only.
1 No. 5 Austin Crusher only.
1 No. 5 Gates Crusher only.
2 No. 3 Gates Crushers.
1 No. 4 Gates Crusher.
1 17x24 Buchanan Jaw Crusher,

made by Geo. V. Cresson & Co., Philadelphia.

We also have a lot of crushers of various makes at a great bargain.

All of the above crushers are absolutely first-class.

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QUICK SALE DESIRED.

An eighty thousand dollar stock of new up-to-date positive mixers; side-face and face-down block machines, of all standard makes; Kramer automatic tampers; United power tampers; porch molds; special molds; cap and sill molds; brick machines; shingle machines; block cars. Must be sold by January 1. Sale will continue until stock is closed out at a discount of 40 to 60 per cent. This stock will be sold at less than cost to manufacture. I will guarantee R. R. expenses to Plain City and return of parties in the market for the above machinery, that they may see machines before buying. Machines can be seen in operation any day. J. W. Sanderson, Plain City, Ohio.

HOW ABOUT THESE?

Gates No. 5 Style "D" Crusher, rear drive, together with 36' Elevator and 42"x12' Screen and Dust Jacket.
Gates No. 3 Style "D" Crusher, rear drive.
Lidgerwood No. 72 Hoist, 8½x10" D. C. D. D.
Buffalo 7¼x10¾" with boiler and boom swinger.
Mundy 7¼"x10" with boiler and boom swinger.
Flory No. 13 Hoist, 7"x10" D. C. D. D. with boiler.
American 6¼x10" D. C. D. D. with boiler (2).
Byers 6"x7" with boiler (both friction and links).
Smith No. 2½ Mixer, mounted, with engine and boiler.
Koehring No. 2 Mixer, mounted, with engine and boiler.
Smith No. 2 Mixer, mounted, with engine and boiler.
Knowles Pump, Duplex, 16"x10½"x12".
Laidlaw-Dunn-Gordon Duplex Compound, 14x20x10x18.
32-ton standard gauge 4-wheel Switcher and Tender.
Norwalk compound Compressor; 960' to 100 lbs.
We have Steam Shovels, Dinkies, Cars, Rock Drills, Road Rollers, Clams and Orange Peels, etc.
Send for our printed stock sheet and price list.
We buy good equipment; what have you?
Address WILLIS SHAW MACHINERY CO.,
171 La Salle St., Chicago, Ill.

FOR SALE CHEAP.

One first-class automatic block machine, one concrete batch mixer, one dray. Write to
E. E. JACKSON, 405 Jackson St., Fremont, Ohio.

ENGINES AND BOILERS FOR SALE.

Engines—Corliss, Automatic and Throttling, all sizes from 1 to 500 H. P.
Boilers—Horizontal, Portable and Vertical, all sizes from 1 to 200 H. P.
Pumps, Heaters, Tanks, Sawmill and General Machinery.
Write for our prices on your requirements.
THE RANDLE MACHINE CO.,
1745 Powers St., Cincinnati, O.

GOOD AS NEW.

For sale, one perfection concrete block press, used four months, hence is as good as new. Good reasons for selling. Address
I. L. FAUCETT, Chattanooga, Tenn.

MATERIAL WANTED

BURIAL VAULT MOLD

for sale. One Indiana burial vault mold. New. Cheap.
ABBEY-DODGE-BROOKS CONCRETE CO.,
2 Passaic St., Newark, N. J.

Fast Trains
Day
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Night
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MONON ROUTE

EXCELLENT SERVICE
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La Fayette
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Electric Lighted Standard Sleepers on Night Trains, Parlor and Dining Cars on Day Trains

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IMPORTANT
Advertisers—Take Notice

Changes of Copy

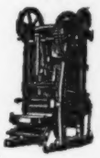
Must be in this office by the Fifteenth of the month, if proofs are desired; if no proofs are required the desired changes can be made if copy is received by noon of the Nineteenth.

New Advertisements

To insure proper classification, should be in this office by the Fifteenth of the month, but they can be inserted in the last form going to press if received by the Nineteenth. The punctual publication of the paper admits no deviation from these rules. Advertisers are earnestly requested to co-operate with us.

THE FRANCIS PUBLISHING COMPANY
355 Dearborn Street, Chicago, Ill.

THE HENRY MARTIN BRICK MACHINE MFG. CO.
LANCASTER, PENNA.



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Whenever you wish to
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MAIN BELTING COMPANY, Market and Randolph Sts. CHICAGO, ILLINOIS

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Index to Advertisements

Aetna Powder Co..... 17
Alma Cement Co..... 1
Alpha Portland Cement Co... 2
Alsing, J. R., Eng. Co..... 61
American Cement Co..... 76
American Clay Working Machinery Co..... 75
American Dynalite Co..... 16
American Process Co..... 18
American Sandstone Brick Machine Co..... 74
American School of Correspondence 65
American Soap Stone Finish Co. 15
American Steel and Wire Co. 10
American Well Works, The... 54
Anchor Concrete Stone Co... 72
Anhydrous Pressed Stone Co.. 9
Aquabar Co., The..... 9
Ashland Fire Brick Co..... 18
Atlas Car & Mfg. Co..... 76
Atlas Portland Cement Co.... 76
Austin Mfg. Co..... 57

Bacon, Earle C..... 56
Barrett Mfg. Co..... 16
Bartlett, C. O., & Snow Co., The 56
Bates Valve Bag Co..... 53
Books for the Trade..... 60
Buckbee, J. C., Co..... 2
Buckeye Fire Clay Co..... 58
Bucyrus Co., The..... 61
Butterworth & Lowe..... 64

Caldwell, H. W., & Sons Co... 63
Carolina Portland Cement Co. 1
Castalia Portland Cement Co. 7
Cement Tile Mchy. Co..... 71
Century Cement Mach. Co.... 71
Charles, J. M..... 9
Chattanooga Paint Co..... 40
Chemical Stucco Retarder Co. 65
Chicago Belting Co..... 1
Chicago Portland Cement Co. 2
Chrome Steel Works..... 56
Classified Business Directory. 54
Clinton Metallic Paint Co.... 63
Clyde Iron Works..... 6
Concrete Stone & Sand Co.... 73
Continental Car & Equip. Co. 13
Cosmo Lubricating Co..... 59
Cummer & Son Co., F. D...18-65

Davenport Loco. Works..... 58
De Smet, Geo..... 8
Dexter Portland Cement..... 1
Dixie Portland Cement Co.... 7
Duff Patents Co..... 14
Dunning, W. D..... 75
Du Pont Powder Co..... 17

Edison Portland Cement Co.. 2
Ehrsam, J. B., & Sons Mfg. Co. 66
Eureka Stone and Ore Crusher Co. 57

Farnham Cheshire Lime Co.. 14
Farrington, H..... 18
Fowler & Pay..... 13
French, Samuel H., & Co.... 1
Fuller Eng. Co..... 63

Gandy Belting Co., The..... 63
Girvin-Nachod Co..... 9
Goetz, C. W., Lime and Cement Co..... 13
Griscom-Spencer Co..... 62

Harbison-Walker Refractories Co. 1
Howell Mining Drill Co..... 56

Illinois Cent. Ry..... 15
Independent Powder Co..... 17
Iowa Hard Plaster Co..... 65
Ironton Portland Cement Co.. 39

Johnson & Chapman Co..... 11

Kelley Island Lime & Trans. Co. 13
Kent Machine Co..... 56
Kent Mill Co..... 60
Keystone Traction Drill Co... 59
King, J. B., & Co..... 64
Kosmos Portland Cement Co. 38
Kritzer Company, The..... 5

Lehigh Car Wheel and Axle Works 59
Lehigh Portland Cement Co.. 2
Little, C. H., & Co..... 40
Louisville Fire Brick Works.. 58

McDonnell Boiler and Iron Works 64
Main Belting Co..... 52
Marsh Co. 51-55
Marblehead Lime Co..... 13
Marquette Cement Mfg. Co... 1
Martin, Henry, Brick Mach. Mfg. Co. 52
Maryland P. C. Co..... 37
Maumee Chemical Co..... 39
Meacham & Wright..... 39
Mitchell Lime Co..... 14
Monarch Typewriter Co..... 8
Monon Route 52
Mostberger-Langner Iron Co.. 74

National Lime and Stone Co.. 15
National Mortar and Supply Co. 12
New Jersey Lime Co..... 15
Niagara Gypsum Co..... 70
Northwestern States P. C. Co. 39
Nuttall, R. D., Co..... 63

Ohio-Binns Retarder Co..... 67
Ohio Fibre Machy. Co., The.. 64
Ohio and Western Lime Co... 13
Oklahoma Port. Cement Co... 37
Oklahoma and Texas Cement Brick Co..... 70
Ottawa Silica Sand Co.....1-39

Peerless Brick Mach. Co..... 71
Peirce City Lime Co..... 9
Penn Allen Port. Cem. Co.... 39
Pennsylvania Cement Co.... 7
Peninsular Port. Cement Co. 2
Perfection Block Mach. Co... 74
Pettyjohn Co., The..... 74
Phoenix Cement Co..... 1
Plymouth Gypsum Co., The.. 64
Power and Mining Mchy. Co.. 4

Rader-Gustave Co..... 67
Raymond Bros. Co., The..... 62
Richardson Scale Co..... 37
Ricketson Mineral Paint Wks. 40
Ruggles-Coles Eng. Co., N. Y. 18

Sackett Plaster Board Co.... 69
Sackett Screen and Chute Co., H. B..... 58
Sandusky P. C. Co..... 8
Sanitary Construction Mfg. Co. 72
Schmatolla-Ernest 12
Scioto Lime and Stone Co.... 15
Security Cement & Lime Co.. 37
Shuart-Fuller Mfg. Co..... 64
Simpson Cement Mold Co.... 74
Smith, T. L., Co..... 57
Spackman, Henry, Eng. Co... 18
St. Louis Portland Cement Co. 2
Springfield Coal & Ice Co.... 63
Sturtevant Mill Co..... 11
Superior Portland Cement Co. 39
Svenson-Shuman Machine Co. 58

Taylor Iron & Steel Co..... 59

Union Mining Co..... 1
United Kansas Port. C. Co... 7
United States Gypsum Co.... 68
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Urschel-Bates Valve Bag Co.. 40
Utica Hydraulic Cement Co.. 38

Vulcan Steam Shovel Co..... 61

Wade Iron Sanitary Mfg. Co.. 63
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Warner, Charles, Co..... 8
Wiener Co., Ernst..... 75
Western Lime and Cement Co. 14
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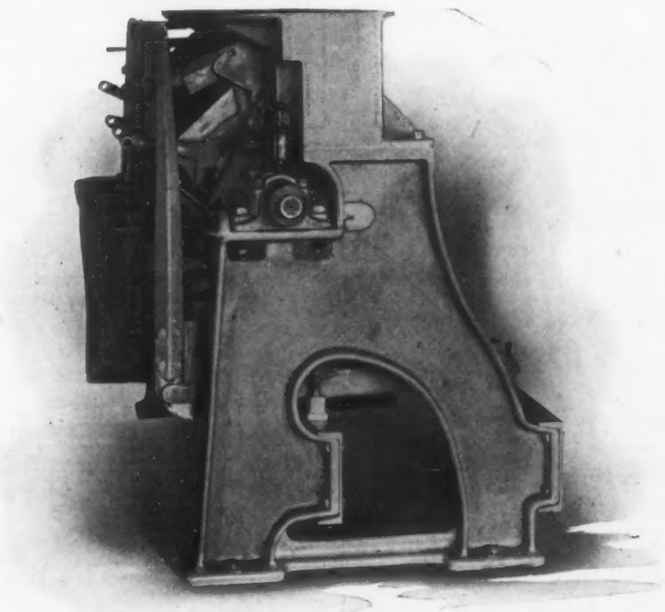
Williams, C. K., & Co..... 18
Williams Patent Crusher and Pulverizer Co..... 58
Winant Cooperage Co..... 18
Wisconsin Lime and Cement Co. 12
Wolverine Portland Cement Co. 2

BATES PACKER



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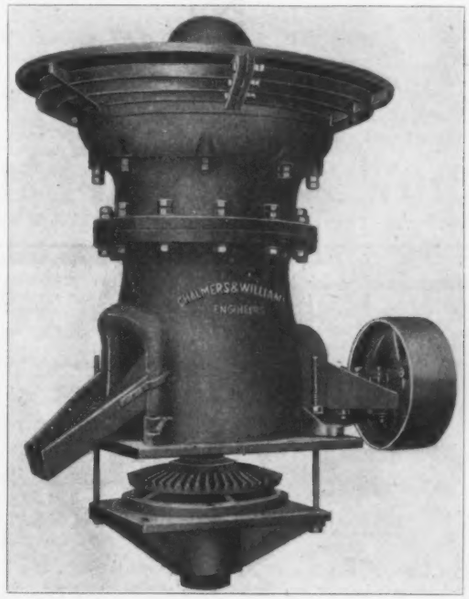

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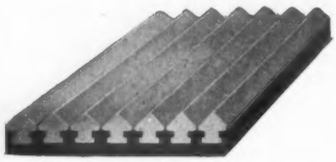
(FORMERLY OF BROOKLYN, N.Y.)



Canda Tempered Steel Crusher Jaw Plate

Patented March 31, 1908

¶ The Canda Tempered Steel Jaw Plate for Blake Crushers is composed of Forged and Rolled Chrome Steel Bars, cast-welded and also mechanically interlocked into a backing of tough steel—and the wearing face is tempered to extreme hardness. We are equipped to supply both corrugated and smooth face plates for all sizes and makes of Blake Crushers.

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For boring anything that an Auger will penetrate.

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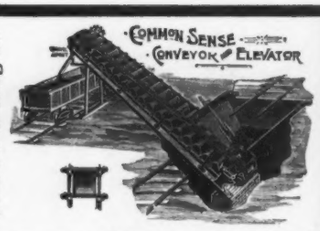

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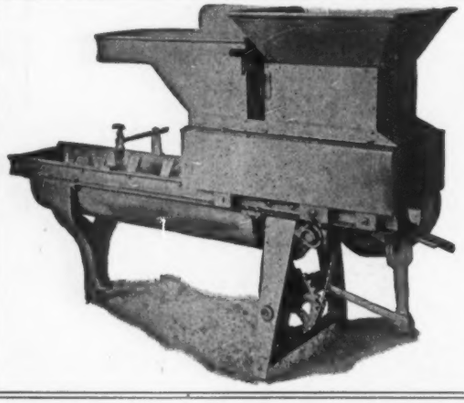

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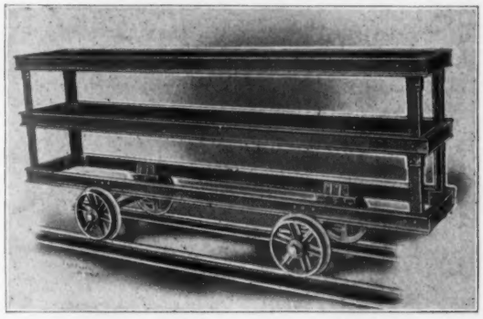

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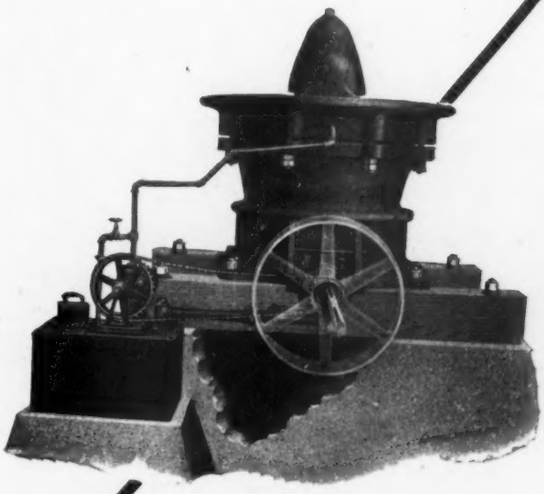

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SYMONS CRUSHER

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Half the height and weight of other machines of same capacity, the Symons possesses

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The only self lubricating Crusher.

The only Crusher having double countershaft bearing.

Simple construction, correct design.

Thousands in use.

Plans and specifications furnished for any sized plant.

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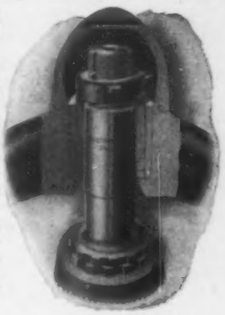
A perfect suspension can be made only by locating the bearing at the point where there is no movement of the shaft. That being a mechanical impossibility it follows that superiority is obtained in fixing the bearing at the point of least gyration of the shaft.

As the accompanying cut will show, the movement of the shaft at the point of suspension in the Austin Crusher is reduced to the minimum and practically eliminated. Consequently the highest possible degree of efficiency and durability is obtained.



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14" WHEELS

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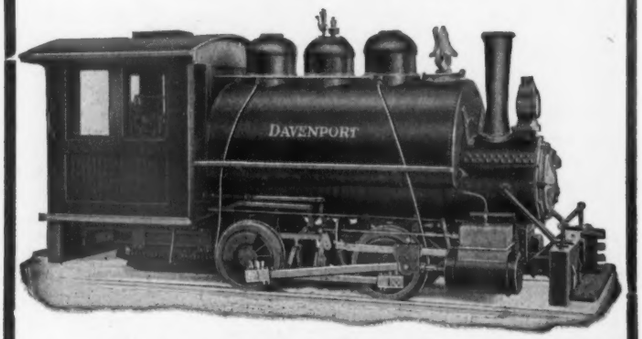

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800 BARRELS 22 HOURS
95 PER CENT THROUGH 20 MESH
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FINENESS ½ IN., ¼ IN. AND ⅛ IN.
HORSE POWER 40 TO 45
1,300 MILLS NOW IN USE

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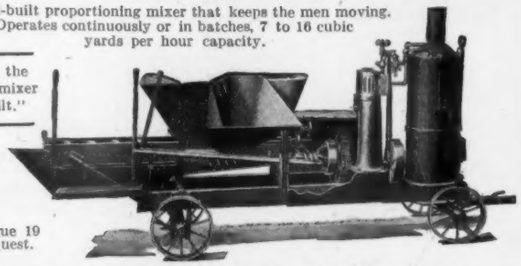
"Pays for itself the first month."

A well-built proportioning mixer that keeps the men moving. Operates continuously or in batches, 7 to 16 cubic yards per hour capacity.

"Easily the simplest mixer ever built."



Catalogue 19 on request.

SVENSON-SHUMAN MACHINE COMPANY,
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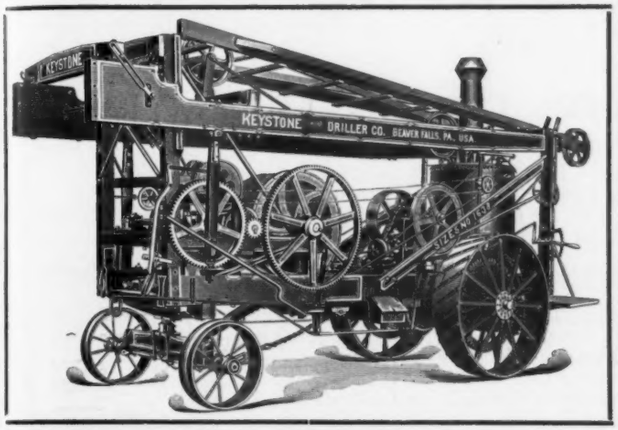
KEYSTONE CHURN DRILLS FOR HEAVY BLAST HOLES



IN CEMENT and STONE QUARRIES, where large and deep blast holes can be used to advantage, these machines form the cheapest and quickest means of sinking 6 inch holes.

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We will ship you a barrel of Cosmo Crusher Oil anywhere east of the Rocky Mountains, freight prepaid. If, after trial, you feel that it has not the qualities which we claim for it, you may return the remainder at our expense. If satisfactory, to be paid for. No higher in price than other crusher oils.

Cosmo Crusher Oil can be used on any make of crusher

ORDER A BARREL TODAY

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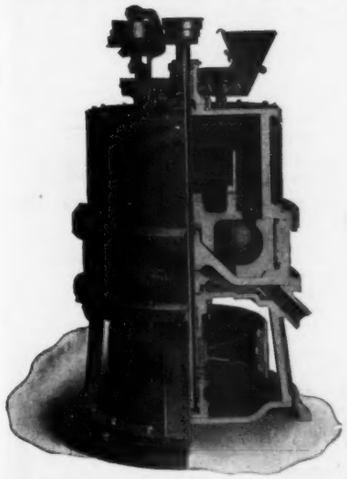
The Fuller-Lehigh Pulverizer Mill



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Produces Commercially

Cement having a higher percentage of Impalpable Powder than can be obtained by any other mill. Tests show that the tensile strength of a one-fourth mortar made with cement pulverized by the Fuller Mill is higher than the tensile strength of a one-third mortar made with cement pulverized to the fineness required by the Standard Specifications.

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Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY. Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

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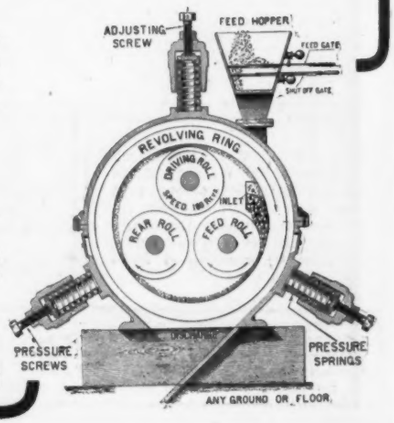

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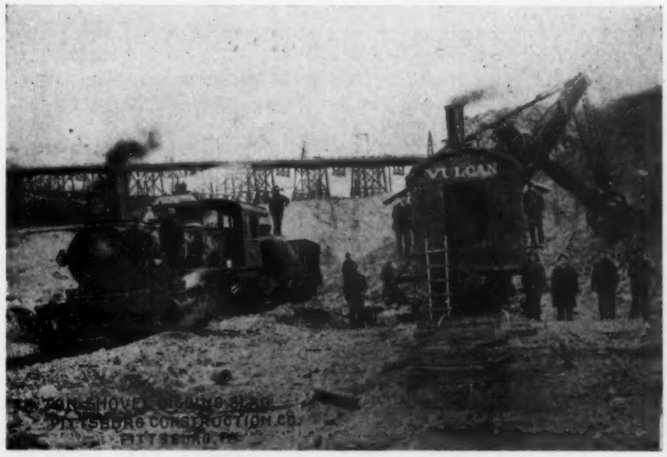

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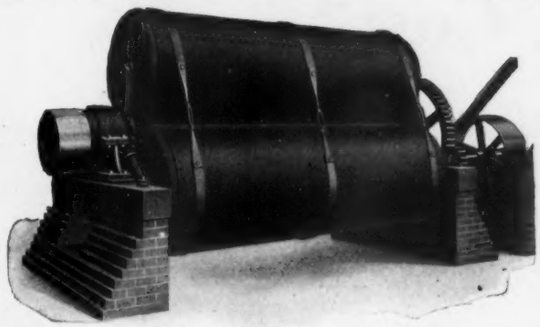

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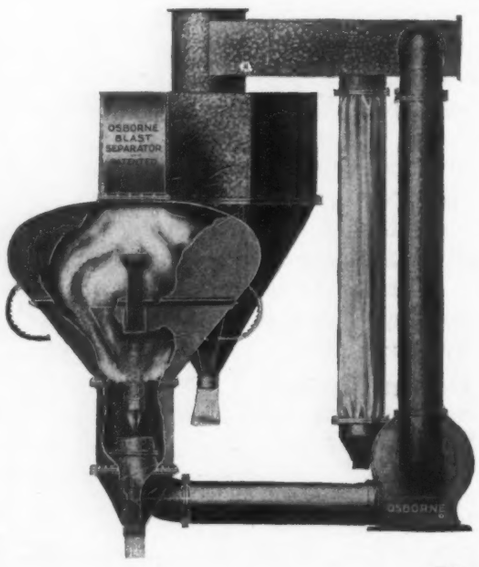

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We will guarantee (and our guarantee is worth something) that
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(Signed) Yours truly,
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This is only one instance taken from our book "Experiences with Gandy." Watch for the ones to follow each month.

REMEMBER—Gandy Red Stitched Cotton Duck Belting **costs one-third as much as leather,** 25 per cent cheaper than rubber. Will do the work equally as well. Write for booklet. **THE GANDY BELTING CO.,**
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Wade Back Water Gate Valves, Clean-Out House Drainage Fittings, Iron Catch Basins and Cast Iron Covers, Etc. Send for Catalogue.

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Let us tell you about Side-Walk Black.

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On account of the high percentage (96 to 98%) carbonate of calcium, this material is especially suited for fluxing.

Excellent Shipping Facilities and Prompt Service.

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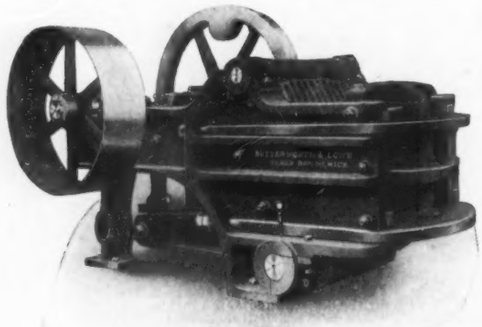

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for soft rocks, burnt lime, etc.

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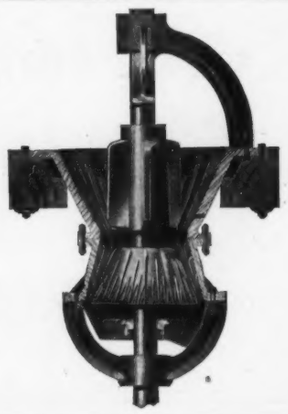

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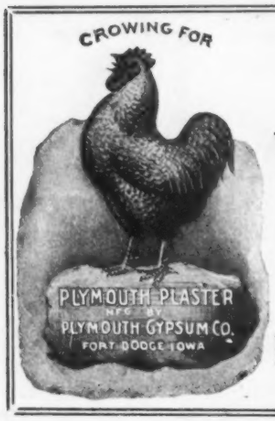

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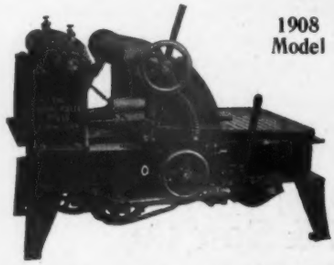
The Shuart-Fuller Improved Fiber Machine



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Has an automatic, proportional, increasing feed, which keeps grade of fiber uniform from start to finish, and holds machine to highest possible rate of production for the grade of fiber and number of saws. Does not begin with fiber and end with dust, nor fall off in rate of production on each log, from 40 to 80 per cent as do the ordinary non-increasing feed machines. Works logs up to 24x24 inches. No royalty string attached to sale. Pay no attention to misrepresentations of our competitors, but write for descriptive circular and terms to

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HARD TO BEAT. NOT HARD TO GET.

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For Mixing Hair Fibre, Wood Fibre and Retarder with Dry Plastering Materials.

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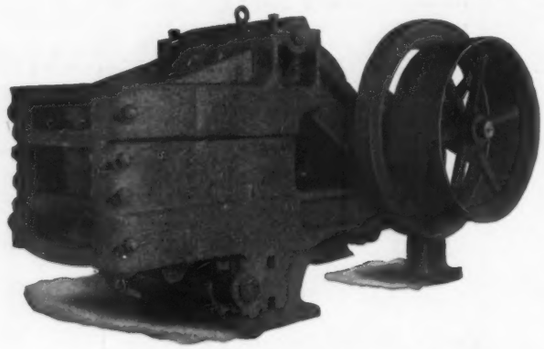
Jaw and Rotary Crushers for Gypsum, Reels, Vibratory Screens, Hair Pickers and Transmission for applying power.



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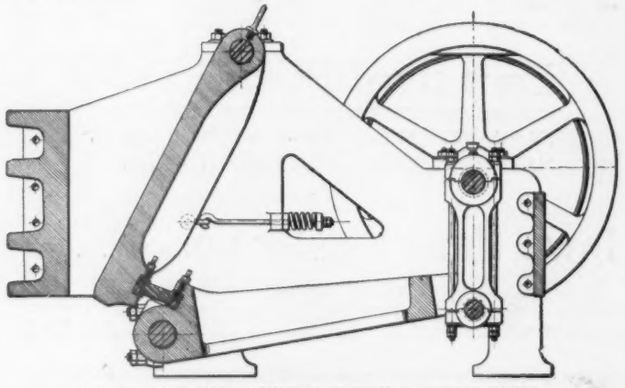
This machine will handle large chunks and reduce from 30 to 40 tons of Gypsum per hour to 2½-inch maximum or smaller if wanted.



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The jaw opening at inlet is 18x28 inches.

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Both Manufacture and Sell Rader Patented Plaster Board

If you are selling plaster boards you are making one profit. Why not manufacture them and make both manufacturers' and dealers' profits? With

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you can manufacture the best plaster boards on the market and at less cost than the largest manufacturers, enabling you to compete with any brand, both in quality and price.

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THE OHIO and BINNS RETARDER CO.
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Reliable Stucco Retarder=Strong=Uniform in Strength=
Duplicate power plant (electric and steam power) installed so as to preclude any possibility of shut down and consequent shut down of mixers who depend upon us for their supply of Retarder. We have a capacity large enough to supply every retarder user in the U. S. and Canada, and some to spare for Europe. Our mills are fireproof in every particular. Write us for prices and information.

THE OHIO and BINNS RETARDER CO.
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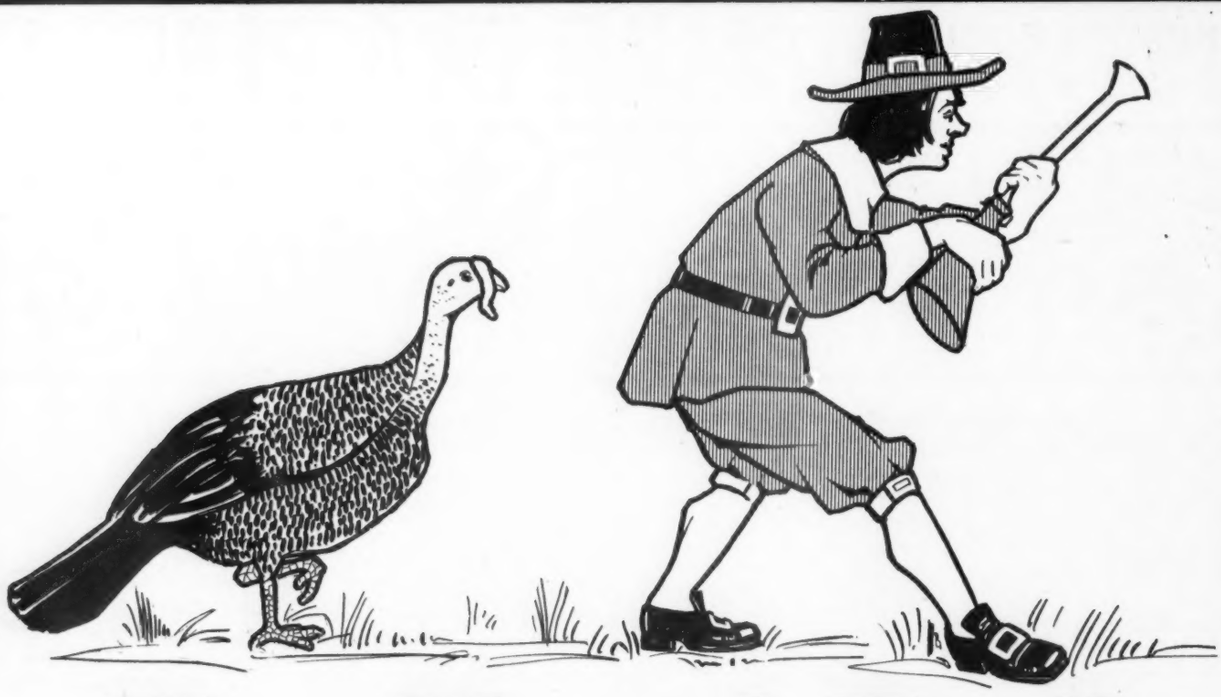

The Blazed Trail

IT'S easy enough for the settlers who come after, to follow the blazed trail. During this Thanksgiving Month, we, as Manufacturers and Dealers, owe much to our Puritan forefathers for the commercial blessings we enjoy as the fruits of their pioneer toil and hardships in "blazing the way."

¶ It is the Material Dealer who is quick and ready to follow the newly blazed paths, who makes real progress and enjoys commercial supremacy.

¶ Many new trails have been blazed for the Dealer in the past decade, in the way of improved building materials—and none more important than

The Gypsinite-Plaster Board System of Fireproofing

¶ Why continue to suffer **the tyranny of lath** when the way has been blazed for you to an infinitely better and more profitable material in **PLASTER BOARD!**

¶ Why be satisfied with selling the plaster and the "lathing" material, when you can just as well go further and sell the material to put them on—i. e., our **GYPSINITE!**

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¶ Widen your horizon—strike into a new field—command more business and make more money this coming year than you ever did before. Thousands of Builders, Contractors, Architects and Dealers have blazed the way for you: it is no untried field.

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Manufacturers of and Dealers in Plaster Board

NOTICE

In a decision of the **United States Circuit Court** for the District of New Jersey rendered on the third of February, 1909, in the case of the Sackett Plaster Board Company, Complainant, versus Stephen J. Rutkowsky, Defendant, the Court sustains the Sackett Patent No. 52123, and declares the patent infringed. This decision is important to present manufacturers of plaster board because the opinion of the Court says, "SACKETT APPEARS TO HAVE BEEN THE FIRST TO HAVE MADE A PLASTER BOARD THAT COULD BE SUCCESSFULLY USED AS A SUBSTITUTE FOR LATH AND PLASTER".

ALL plaster boards made of paper and plaster now being offered by unauthorized manufacturers, dealers and agents, are infringements of this patent, and are made in various forms varying somewhat from our plaster board with the idea of evading our patent. In the opinion of our counsel, **"Any makers or users of, or dealers in, plaster board made up of paper and plaster in which the paper is used as a binder, infringe our patent,"** and we shall vigorously prosecute any such infringements.

We are prepared to supply all dealers with Sackett Plaster Board at reasonable prices, and purchasers from us or our authorized agents will avoid all liability for damages or the expense of litigation.

Sackett Plaster Board Co.

New York City **Garbutt, N. Y.** **Grand Rapids, Mich.**
Chicago, Ill. **Fort Dodge, Ia.**

ANNOUNCEMENT

We are just closing our second year and are pleased to say, the high quality of our various products, together with our unexcelled service, has made so many friends for the "NIAGARA" brand of

Wood Fiber Plaster
Neat Cement Plaster — Sanded Wall Plaster
Finishing Plasters — Stucco

that it has been necessary to increase the capacity of our Oakfield Mills. This has been done, and we therefore offer our many patrons and the trade generally QUALITY, SERVICE and CAPACITY sufficient to enable us to handle any volume of business promptly, and we would appreciate your order.

NIAGARA GYPSUM COMPANY

Mills: Oakfield, N. Y. Office: Buffalo, N. Y.

McIntosh Automatic Sand-Cement Brick Machine

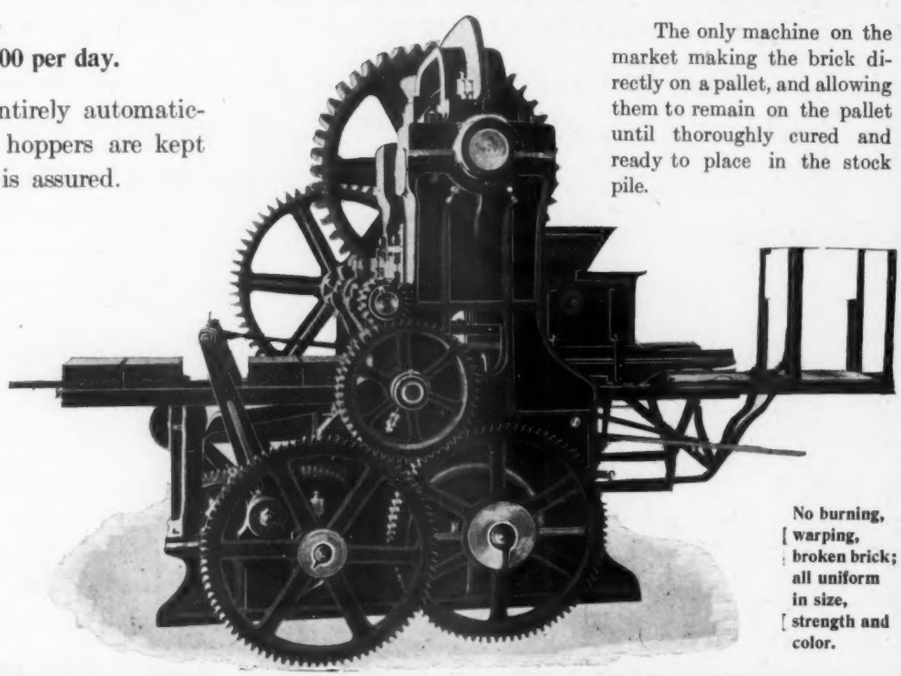
Weight, 11 tons.

Guaranteed Capacity, 20,000 per day.

As the McINTOSH works entirely automatically, if the material and pallet hoppers are kept supplied, the guaranteed output is assured.

Makes eight (8) brick on a pallet at each revolution, and puts the same TREMENDOUS PRESSURE on every brick. ∴ ∴ ∴

Write for our new catalogue describing our machine and the complete installation of a modern Cement Brick Plant, also valuable information regarding the manufacture and curing of Cement Brick.



The only machine on the market making the brick directly on a pallet, and allowing them to remain on the pallet until thoroughly cured and ready to place in the stock pile.

No burning, warping, broken brick; all uniform in size, strength and color.

Oklahoma & Texas Cement Brick Co.

OKLAHOMA CITY
OKLAHOMA, U.S.A.

The Improved Peerless

One-Man Cement Brick Machine

Equipped with new tamping device, which tamps ten bricks in the machine at one operation, making 12,000 perfectly formed bricks in ten hours.

The superiority of the Peerless Brick Machine was demonstrated conclusively at all of the recent conventions.

It is the greatest invention in the industry. Simple, strong and durable. Combines all the advantages of every other machine at the smallest cost.

The most successful and most easily operated one-man brick machine ever made.

Write at once for particulars.

Peerless Brick Machine Co.

15 NORTH SIXTH STREET MINNEAPOLIS, MINN.

HERCULES

BLOCK MACHINES

ARE THE FASTEST, SIMPLEST, STRONGEST AND

BEST MACHINES BUILT

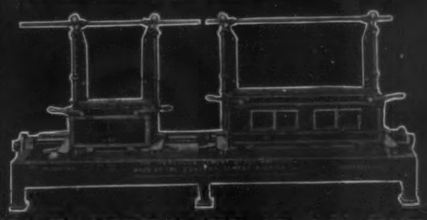
AND WE CAN PROVE IT

THEY EXPAND TO MEET EVERY DEMAND

THE ONLY machine making any size of stone from a 3 inch block to a 6 foot water table.

THE ONLY face down machine that allows for a really coarse WET mixture with fine facing.

THE ONLY machine on which four 16 inch stone can be made at ONE time, or two 20 inch, 24 inch or 32 inch stone at one time.



THE HERCULES IS AN OLD ESTABLISHED MACHINE

Built along Correct Lines and Endorsed by the Leading Contractors and Builders. They are used in all parts of the world.

THE

Hercules Power Tamper

Will Save You Money

It will increase your capacity and enable you to produce a better grade of

Concrete Building Blocks

Blocks that are TAMPED EVENLY —THOROUGHLY— PERFECTLY.

It costs you nothing to investigate.

For Catalogues of

HERCULES Block Machines or Tampers

Address

CENTURY CEMENT MACHINE CO.

288-298 St. Paul St.
ROCHESTER, N. Y.

THIS new illustrated **sixty-four page catalog** has just been received from the press and will be mailed to you **free** upon receipt of your request.

It is a book compiled after many years of experience in the manufacture and use of concrete machinery and equipment, and embodies many fine-toned illustrations of the highest class concrete machinery in existence. It also contains much useful information for the buyer and will be found a handy reference book.

If **you** are in the market for anything in the line of concrete machinery or equipment **you** should receive this catalog before purchasing. he merits of the machines and the clear illustrations are sure to **please** and **interest** you. Don't put it off—send us your name right now. Tell us just what you are interested in most and receive this catalog with complete information and prices.

THE $ LINE

The Cement Tile Machinery Co.

740-45 Rath St., EAST WATERLOO, IA.

Anchor Concrete Block Machines

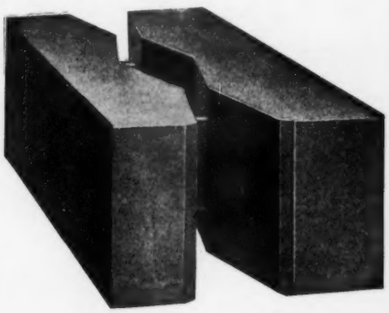
THEY HAVE STOOD THE TEST OF TIME AND MADE GOOD, WITH A PROFIT TO THE USER, TOO.

ANCHOR MACHINE IN POSITION TO RECEIVE MIXTURE

Anchor continuous air space blocks guaranteed frost and moisture proof.

Anchor blocks are bound together with firm ¼ inch galvanized iron rods 8 inches long and turned one inch at each end.

Standard Anchor Machines make blocks that lay in the wall 8 in. by 24 in., any width from 8 in to 12 in.



THE FAMOUS ANCHOR BLOCK. ENDORSED BY ARCHITECTS EVERYWHERE.

Anchor Jr. Machines make blocks that lay in the wall 8 in. by 16 in. and any width from 8 in to 12 in.

☞ ONE ANCHOR MACHINE, PLUS ENERGY, BACKED BY A LITTLE CAPITAL. MEANS THE PRODUCTION OF HIGH-GRADE BUILDING ALWAYS IN DEMAND.

WRITE FOR CATALOGUE AND PRICES.

ALL MACHINES SOLD DIRECT TO THE TRADE.

Anchor Concrete Stone Company

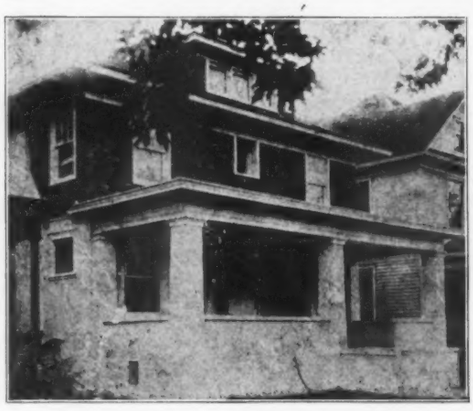
ROCK RAPIDS, IOWA

KELLASTONE
PURE WHITE PLASTIC STONE

Applied on wood or metal skeleton frame, inside and outside walls, porch complete, steps and columns.

Water Proof
Fire Proof
Acid Proof

Imagine a house without a crack or crevice. No carpets; floors and base one piece. Rug center with colored border.



KINTZ DWELLING, South 7th Street, Terre Haute, Ind.

Architects can let their fancy run wild. Kellastone can be applied on any shape or form, wood or iron. Twenty-five shades or colors.

Branch factories will be established throughout the United States.

Main Factory

Address

Main Office

Sanitary Construction and Manufacturing Co.

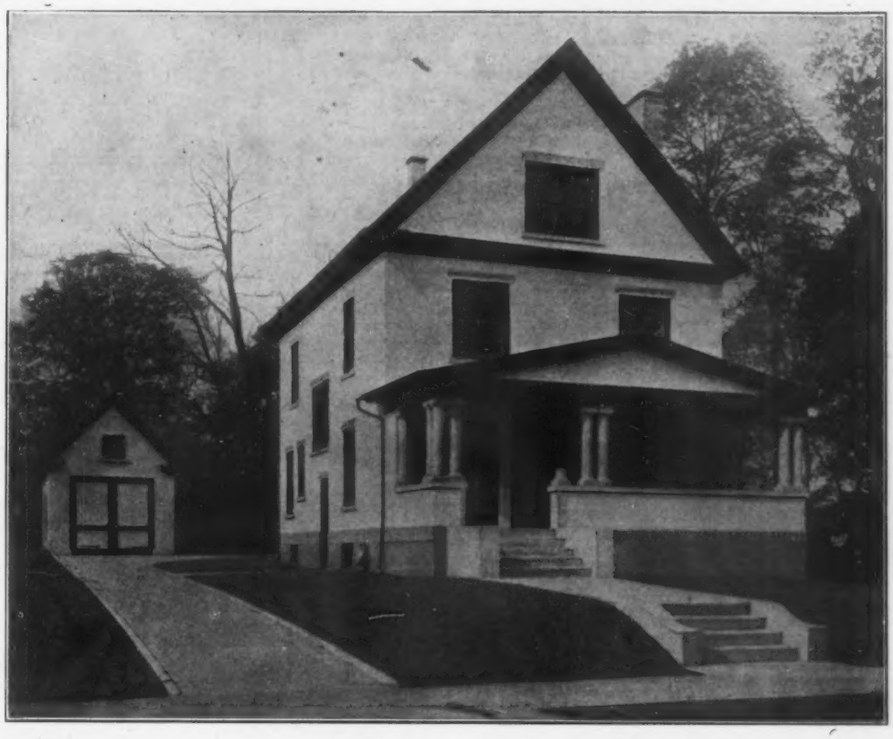
TERRE HAUTE, IND.

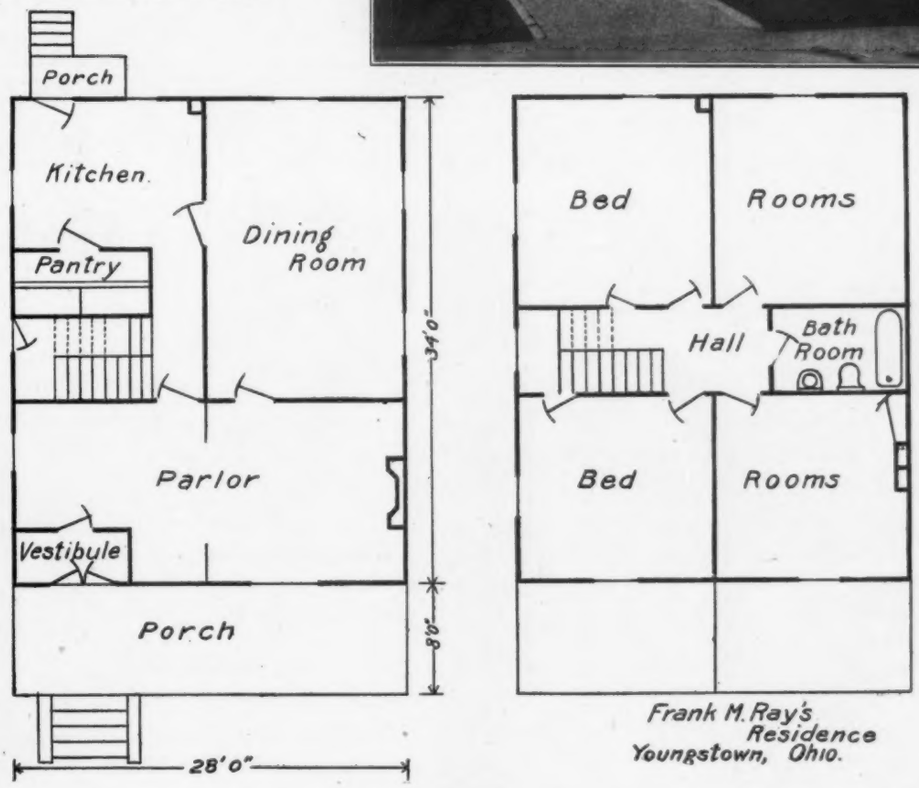
Low Cost Concrete Homes

The greatest obstacles to the use of concrete in small residence construction are: 1. The expense of form work and contractor's plant in reinforced concrete (monolithic) construction, and 2. The unsatisfactory appearance and poor waterproof qualities of concrete blocks made by the dry-tamp process. Both these obstacles have been overcome by

The Pauly Concrete Hollow Tile.

Full particulars with regard to the equipment of a suitable factory with the necessary machinery for any location will be cheerfully given, and a conservative and profitable deal will be exhibited for prospective manufacturers of concrete structural tile upon request.





Frank M. Ray's Residence
Youngstown, Ohio.

This residence is fireproof and waterproof. It was built in Youngstown, Ohio, fall of 1908, upon the following contract specifications:

Masonry work complete, including selling price of tile, concrete floor extending under entire basement and combination tile and reinforced concrete floors	$ 950.00
Excavation of cellar and construction of walks, steps, etc., outside of building proper	125.00
Lumber, hardwood lumber finish for interior and glass (including built-in furniture and plate glass mirrors)	1,000.00
Carpenter work	700.00
Slate roof and spouting	200.00
Plumbing in kitchen, bathroom and basement	250.00
Painting (exterior and interior)	125.00
Furnace and piping	150.00
Total plastering (including material)	200.00
	$3,700.00
Plus 10% profit	370.00
Total contract price	$4,070.00

The walks, driveway and steps, as well as the porch columns, are of concrete. It is sumptuously finished inside with hardwood, plate glass windows and doors with slate roof and six massive pieces of built-in furniture of elegant design, with plate mirrors, etc., all included in the figure named.

☞ There is a good business opportunity in building homes of this type in any city. We furnish the entire machinery outfit upon the basis of a lease.

Send for booklet showing a large number of houses built with this material.

CONCRETE STONE & SAND CO., Youngstown, O.

PERFECTION IN BLOCK MAKING

If you wish to attain this you should combine these three important features:

Wet Process, Face Down, Damp Curing.

The PETTYJOHN INVINCIBLE Machine does this, and is the only machine that does. Tandem Invincible makes two blocks at once. Price $65.00 and up. Single Invincibles, $35.00 and up. With our Triple Tier Racking System green blocks can be stacked three high direct from machine with inexpensive home-made rigging. Plans and blue prints free to customers. It economizes space, reduces off-bearing distance and above all insures slow, even, damp and perfect curing and bleaching.

Write for our latest edition of "Stone Making," a book of valuable data, just off the press—FREE

THE PETTYJOHN COMPANY
614 North Sixth Street Terre Haute, Indiana

Perfection at Last Attained in the Concrete Block Industry

The Perfection Power Block Machine is the only Power Block Machine on the market, making a Hollow Concrete Building Block under Heavy Pressure and at Great Speed.

Machines have been in constant use since July 1st, 1905, with practically no expense for repairs.

The machine handles sand, gravel, crushed rock, slag and coloring materials perfectly.

All materials accurately measured, thoroughly mixed and uniformly pressed under 200,000 pounds pressure.

Makes 8, 9 and 12x8x24 inch blocks in five faces, and fractional and angle blocks.

Machine can be arranged to make Two Piece and Faced Blocks if desired.

All machines delivered, set up and put in operation to show a guaranteed capacity of 60 blocks (12x8x24 inch) per hour with five men.

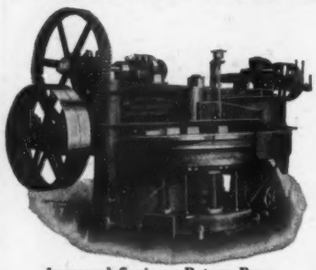
Blocks perfectly cured in 24 hours in Vapor Curing Kilns of our own design.

Full details, catalog, testimonials, etc., sent upon request.

THE PERFECTION BLOCK MACHINE CO
SIOUX FALLS, SOUTH DAKOTA.

The American Sandstone Brick Machinery Co.

SAGINAW, MICH.



Improved Saginaw Rotary Press.

Built either right or left handed in three sizes of capacities of 800, 1400 and 2200 brick per hour. Can be equipped with extra table for making face and fancy brick on which double pressure is exerted.

Complete Sandstone Brick Plants or Partial Equipments Installed Under Absolute Guarantees as to Capacity, Quality, and Cost of Production.

WE are the oldest manufacturers of Sand Lime Brick Machinery in the U. S. today, and have more successful plants in operation than any other Company. Why not profit by our experience? Send us samples of your sand and let us advise you as to it's quality for brick purposes and what machinery you will require to produce the best results. Write for catalogue "C" describing our system in detail.

Buffalo Brick Clamp

Will Pay for Itself

In three days by handling brick over the old method.

By saving twenty-five per cent. time unloading a car of brick.

By not making a mistake in the count, as they can be adjusted from four paving brick to twelve regular.

THE ONLY TOOL TO HANDLE BRICK

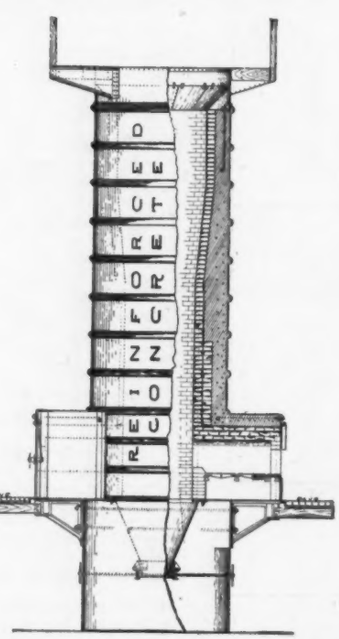
By saving from 50c to $1.00 on every thousand pressed brick by not chipping.

Pavers save thirty-three per cent. by carrying bricks from curb to paver instead of wheeling them.

Takes from four paving brick to twelve regular.

Manufactured by

Mostberger-Langner Iron Co.
876-890 S. Division St., Buffalo, N. Y.



Broomell Reinforced Concrete Lime Kiln

Most perfect kiln in the world. Concrete is placed in steel forms, which are leased for such length of time as may be necessary. By this plan kilns superior in every way can be built at a low cost. Send for descriptive circular.

A. P. BROOMELL, Manufacturer, YORK, PENN.

Simpson Porches

Are Easy to Sell

BECAUSE:

They are artistic
They are symmetrical
They are everlasting
They are inexpensive

Simpson Molds produce the columns and other ornamental work without the use of skilled labor.

Send for our Porch Book, which is full of ideas and illustrations. Enclose your business stationery.

The Simpson Cement Mold Co.
140 East Spring Street, Columbus, Ohio

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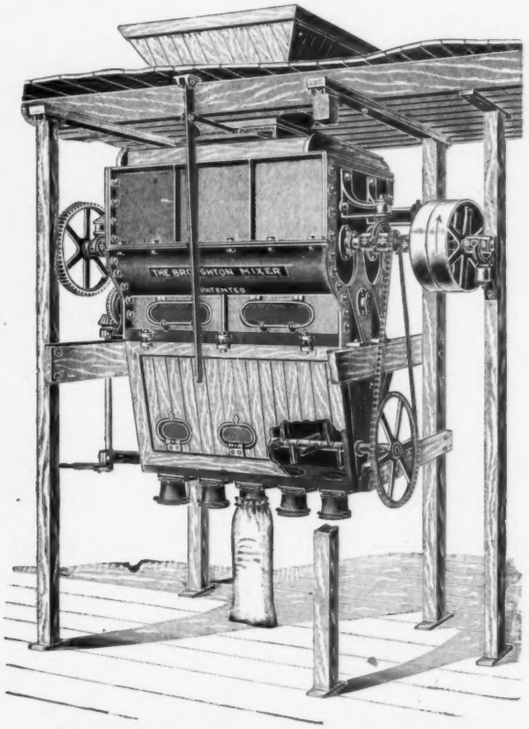
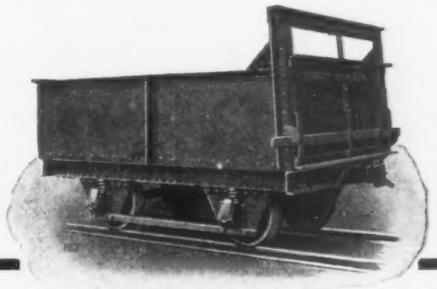


The most thorough and efficient Mixers of Plaster, Cement and Dry Materials. Send for Circular.

W. D. DUNNING, Water St., Syracuse, N.Y.

"USE WIENER TRACKS AND CARS TO CARRY YOUR LOAD."



Above cut shows an all-steel car for carrying cement, limestone, etc.

OUR STEEL CARS

Stand in a class by themselves. They are manufactured by SPECIAL MACHINERY and combine the latest ideas of design and construction. Our experience covers a period of 20 YEARS in this business and our Industrial Railway Material embodies all the features which experience has taught us to be the best.

LARGE STOCK

of Industrial Tracks, Frogs, Switches, Crossings, Turntables, complete track layouts, CARS, etc. Prompt shipment of all equipment.

Our Catalogue 17 is full of illustrations and gives dimensions and other valuable information—It will be sent on request.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.

ERNST WIENER COMPANY

196 Fulton St., NEW YORK, N. Y.

Agents for Industrial Locomotives for the Baldwin Locomotive Works.

BRANCH OFFICES:

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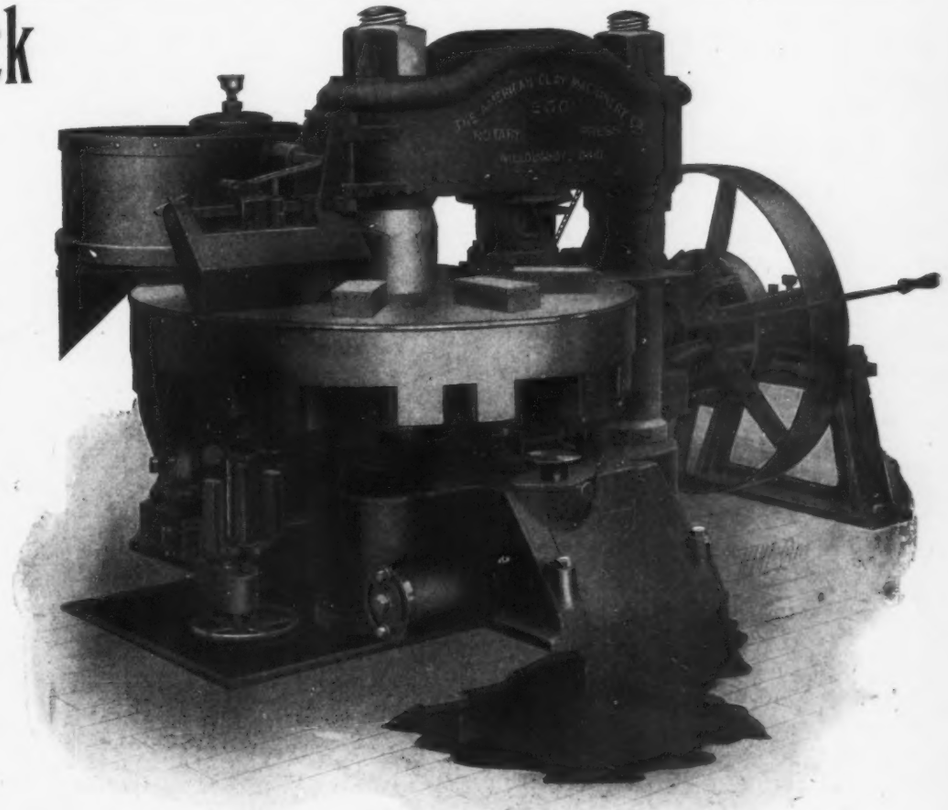
Los Angeles, Cal., 106 W. 3d St. — Norfolk, Va., 160 Water St. — San Francisco, 202 Second St. — St. Louis, Mo., 563 Security Bldg.

Sand-Lime Brick Machinery

OUR Sand-Lime Brick Machinery is at least a little better than any other. We have testimonials to show it. We build it all in our own factory and are sure of its quality. We are the only firm doing this. We will design and equip your entire plant or will sell you parts of your equipment. Our catalog describing and illustrating our full line will be sent upon request.

We also build a full line of machinery and appliances for making Clay Products, Cement and Pottery, Dryers and Dryer Apparatus.

Everything we sell we make. We therefore know its quality to be right.



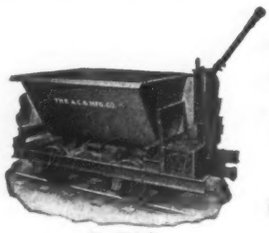
The American Clay Machinery Company

WILLOUGHBY, OHIO, U. S. A.

WE BUILD

CARS

FOR



No. 217-E
Side Dump Car
Equipped with Motor

QUARRIES, MINES, CEMENT WORKS AND GENERAL USE

No. 277
Steel Mines and Quarry Car

No. 145-C
Pressed Steel Top, Ball Bearing Turntable; Patented

SWITCHES, FROGS

No. 600
Steel Dumping Bucket

RAIL, TURNTABLES

THE ATLAS CAR & MFG. CO.
CLEVELAND, OHIO.

GIANT
PORTLAND CEMENT

An unsurpassed record of 25 years.

(Send for our booklets.)

American Cement Co.
PHILADELPHIA

PORTLAND ATLAS CEMENT
30 BROAD ST. NEW YORK
None Just as Good.

PORTLAND ATLAS CEMENT
30 BROAD ST. NEW YORK
None Just as Good.

Everyone knows the attractiveness and value of concrete as a building material, but not everyone knows the importance of getting the right brand of cement.

ATLAS PORTLAND CEMENT

produces uniform work of the best quality. It is not good in one spot and bad in another; it is all good, all equally good, all the same. It produces a building as permanent, lasting and durable as stone. It gives you a one-piece house, every inch of which is fireproof and sanitary. It is a delightful building material, a logical one and a typical American one. Only be sure you get the right cement—ATLAS—the cement of which the United States Government bought 4,500,000 barrels for use in building the Panama canal.

SEND FOR OUR BOOKS ON CONCRETE CONSTRUCTION

"Concrete Houses and Cottages," Vol. I—Large Houses, $1.00; Vol. II—Small Houses,	$1.00	"Reinforced Concrete in Factory Construction." delivery charge,	$0.10
"Concrete Country Residences" (out of print),	2.00	"Concrete in Railroad Construction,"	1.00
"Concrete Cottages,"	sent free	"Concrete in Highway Construction,"	1.00
"Concrete Construction About the Home and on the Farm,"	sent free	"Concrete Garages,"	sent free

If your dealer cannot supply you with ATLAS, write to

THE ATLAS PORTLAND CEMENT CO., Dept. U, 30 Broad Street New York City

LARGEST OUTPUT OF ANY CEMENT COMPANY IN THE WORLD—OVER 50,000 BARRELS PER DAY.